GENERAL CATALOGUE

REV1 *- 2014*

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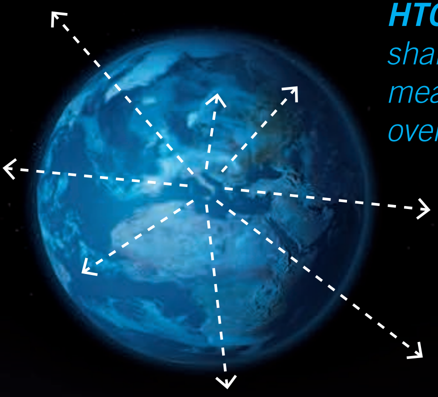
The App for easy and intuitive solving of all problems due to energy consumption and electrical safety

Interfacing tablets and smartphones with HT last generation instruments is possible thanks to the creation of the App HTANALYSIS.

HTANALYSIS is a professional software allowing to display and consult measurements and records on your devices and to share them with HTCloud database.

HTANALYSIS permits to create professional reports with images, texts, videos and vocal comments. By interfacing the instrument with your device's display, the touch-screen interaction will allow to quickly and in detail show the trend of the recorded quantities.



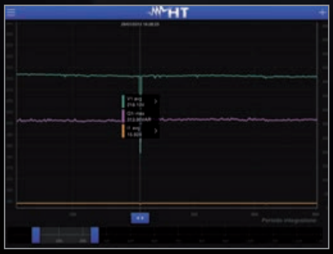
HTCloud...
sharing measurements all over the world!

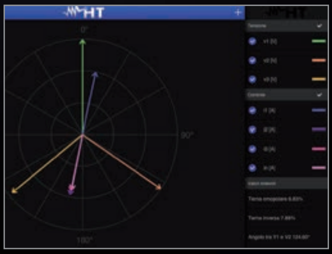
APP HTANALYSIS

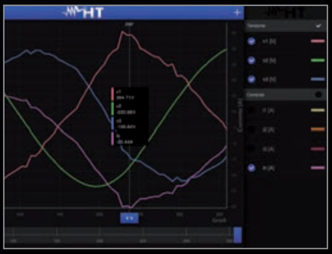
HT
Strumenti trovati
Cerca strumenti
Strumenti compatibili
HT9022
Pinza amperometrica
PQA820
PQA Power Analyser

HTANALYSIS for PQA820

- *Show the recordings of voltage, currents, powers, energies, harmonics, cosphi and frequency.*
- *Real time show of waveforms and vectorial diagrams.*
- *Archive the recordings inside HTCloud database and sharing by mails.*

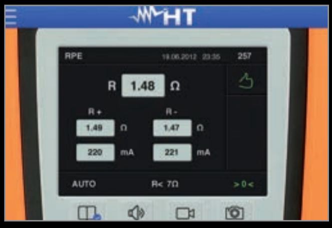






HTANALYSIS for MACROTESTG3

- *Complete report creation with photos, videos, textual and voices comments.*
- *Real time archive of the reports inside HTCloud database and sharing by mails.*



RPE 18.06.2012 23:35 257
R 1.48 Ω
R+ 1.49 Ω 220 mA
R- 1.47 Ω 221 mA
AUTO R< 7Ω >0<

Examples of screen shots on tablets and smartphones with HTANALYSIS dedicated software

HTANALYSIS
Download now the Apple version

Coming soon also for Android systems

POWER QUALITY ANALYZERS and DATA LOGGERS

	POWER QUALITY ANALYZERS					DATA LOGGERS			
Model	**PQA824**	**PQA823**	**VEGA78**	**PQA820**	**HT9022**	**XL423**	**XL424**	**XL421**	**XL422**
AC TRMS voltage in single phase plants	•	•	•	•	•	•	•		
AC TRMS voltage in three phase plants	•	•	•	•			•		
AC TRMS current in single phase plants	•	•	•	•	•			•	•
AC TRMS current in three phase plants	•	•	•	•					•
AC TRMS voltage, current, power, energy, PF in single phase plants	•	•	•	•	•				
AC TRMS voltage, current, power, energy, PF in three phase plants	•	•	•	•					
Neutral to ground voltage	•	•	•		•				
DC voltage, current, power	•	•	•	•	•				
Neutral current	•	•	•	•	•				
Phase sequence indication	•	•	•	•	•				
Voltage unbalance (NEG%, ZERO%)	•	•	•	•					
Voltage Flicker (Pst, Plt)	•	•							
Measurements by external CTs and VTs	•	•	•	•					
Voltage/current waveforms with selectable pages	•	•	•	•(on mobile device)					
Voltage/current harmonic histograms and THD% calculation	•	•	•	•(on mobile device)	•				
Voltage/current vectorial diagram	•	•	•	•(on mobile device)					
Recording analysis with selectable integration period IP	•(1s-60m)	•(1s-60m)	•(1s-60m)	•(5s-60m)	•(1s-15m)	•(1s-60m)	•(1s-60m)	•(1s-60m)	•(1s-60m)
Simultaneous recording of all available analysis	•	•	•	•	•				
Max number of selectable parameters for simultaneous recording	251	251	251	383	60 (fixed)	1	3	1	3
Voltage/current harmonic analysis up to 49th order	•	•	•	•	•(25th)				
Complete EN50160 analysis	•	•							
Voltage anomalies (sags, swells) from 10ms @50Hz with selectable thresholds	•	•	•	•					
Inrush currents of electrical motors	•	•			•				
Voltage fast transients (spikes) (5µs resolution, 200kHz sampling rate)	•								
Recording duration indication	•	•	•		•				
Predefined and customized recording settings	•	•	•						
“Touch screen” LCD display	•	•	•						
Display resolution (pxl)	320x240	320x240	320x240		128x128				
Colour display	•	•	•						
Battery	Li-Ion	Li-Ion	Li-Ion	Li-Ion	Alkaline	Alkaline	Alkaline	Alkaline	Alkaline
Power supply by rechargeable battery	•	•	•	•					
Power supply by AC/DC adapter	• (external)	• (external)	• (external)	• (built-in)					
Auto Power OFF	•	•	•	•	•				
Internal memory size	15Mb	15Mb	15Mb	8Mb	2Mb	1Mb	1Mb	1Mb	1Mb
External Compact Flash memory	•	•	•						
USB port for external memory stick	•	•	•						
Approx. memory duration (in days @ IP=15min @ max parameters)	110	110	110	30	2.1	365(60s)	365(60s)	365(60s)	365(60s)
PC interface	USB	USB	USB	USB	Bluetooth	RS232	RS232	RS232	RS232
Contextual help at display on each screen	•	•	•	•(on mobile device)					
Saving of recordings and snapshots	•	•	•	•(on mobile device)	•				
Protection password on recordings	•	•	•						
Dimensions (LxWxH) (mm)	235x165x75	235x165x75	235x165x75	255x200x115	252x88x44	120x80x43	120x80x43	120x80x43	120x80x43
Weight (batteries included)	1 Kg	1 Kg	1 Kg	0,7 Kg	0,42 Kg	0,5 Kg	0,5 Kg	0,5 Kg	0,5 Kg
Safety in compliance with IEC/EN61010-1	•	•	•	•	•	•	•	•	•
Quality network standard reference	EN50160	EN50160							
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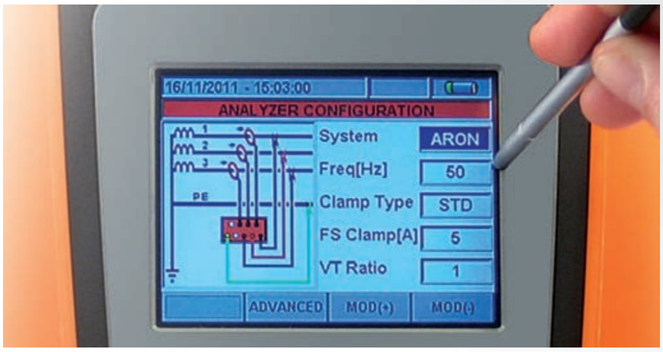
PQA823 - PQA824

PROFESSIONAL POWER QUALITY ANALIZERS FOR MEASURING AND RECORDING MAINS PARAMETERS IN COMPLIANCE WITH STANDARD EN50160

The instruments PQA823 and PQA824 provide the solution, with an innovative approach to meet the needs of professional technical departments and testers as regards measuring and recording generic single-phase and three-phase electric mains parameters, further to solving typical problems of the industrial sector (mains quality, power supply switching, PC network faults, non-linear circuit analysis, system correction, motor starting, etc.). Models are provided with a wide TFT graphic color display (320x240 pxl) with "touch screen". The user interface has identification icons which provide a simple and intuitive selection method of internal parameters. Each instrument allows displaying the parameters in multiple numeric and graphic modes for an easy harmonic analysis. The graphic function "Vector diagram" also allows immediately evaluating the reciprocal phase displacement between the input voltage and current signals, thus defining the nature of loads. The high-capacity internal memory of each model, approx. 15Mbytes, allows saving the data of all recordings for a high number of consecutive days (approx. 1 month with 251 quantities selected and integration period of 15 minutes), but the memory of each instrument is extensible, at all times, by inserting external Compact Flash memories and also by transferring data onto USB memory sticks for a practical management of the saved data.

FUNCTIONS	PQA823	PQA824
Simultaneous measurement of mains parameters on single-phase and three-phase 3-wire and 4-wire systems	•	•
5 voltage input channels and 4 current input channels. Numeric and graphic display (waveform)	•	•
Voltage and current vector diagram	•	•
Voltage and current harmonic analysis up to 49th order with THD% calculation	•	•
Recording of voltage anomalies (sags, swells) with 10ms resolution @50Hz	•	•
Flicker analysis in compliance with EN50160	•	•
Recording of fast voltage transients with 5µs resolution		•
Recording of inrush currents with 10ms resolution	•	•
Input voltage unbalance analysis	•	•
Selectable integration period between 1s and 60min	•	•
Predefined and custom recording settings	•	•
TFT color display with "touch screen"	•	•
Power supply with rechargeable Li-ION battery	•	•
Memory extension by external Compact Flash memory	•	•
Data transfer by USB memory stick drive	•	•
PC interface with USB output	•	•

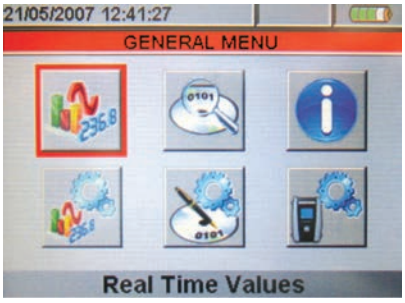


System ARON
Freq[Hz] 50
Clamp Type STD
FS Clamp[A] 5
VT Ratio 1

Wide graphic TFT "touch screen" display

GENERAL SPECIFICATIONS	
Display:	TFT, 65536 colors, (320x240pxl) with high contrast, touch screen
Power supply:	1x3.7V Li-ION rechargeable battery with external adapter,life >6h recording, auto power off after 5 min stand-by
Internal memory:	15Mbyes (110 days duration @ IP=15min and 251 parameters selected)
Memory extension:	external Compact Flash memory
PC interface	USB 2.0
Safety:	IEC/EN61010-1
Insulation :	double insulation
Measurement category:	CAT IV 600V (to ground) CAT IV 1000V (between inputs)
Mains quality and Flicker:	EN50160, IEC/EN61000-4-15
Sequence unbalance:	EN50160, IEC/EN61000-4-7
Dimensions (LxWxH):	235x165x75mm
Weight (batteries incl.):	1kg

ACCESSORIES	Code
Standard	
Flexible transducer for 0÷300A, 0÷3000A AC currents Ø 174mm, 4 pcs	HTFLEX33D
Set of 5 cables + alligator clips	KIT800
AC/DC 230V 50/60Hz mains adapter	A0055
Li-Ion 3.7V rechargeable battery	YABAT0003HT0
Pointer for "touch screen"	PT400
Windows software + USB cable	TOPVIEW2007
Rigid transport suitcase	VA500
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
Transducer for 0÷5A, 0÷100A AC currents Ø 20mm	HT4005N
Transducer for 0÷200A, AC currents Ø 40mm	HT4005K
Transducer for 0÷1A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT96U
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U
Transducer for 0÷200A, 0÷2000A AC currents Ø 70mm	HP30C2
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3
Transducer for 0÷1000A DC currents Ø 50mm	HT98U
Transducer for 0÷1000A DC currents Ø 83mm	HP30D1
Flexible transducer for 0÷300A 0÷3000A AC currents Ø 274mm	HTFLEX35
Transducer 3x1-5A/1V for connection to CTs with accessories	HT903
Magnetic adapter for connection to screw heads	606-IECN
AC/DC 115V/50-60Hz mains adapter - US plug	A0056
Hard carrying case	VA400
Free hands kit	SP-0400
Compact flash memory card	CF800
USB compact flash card reader	MCR800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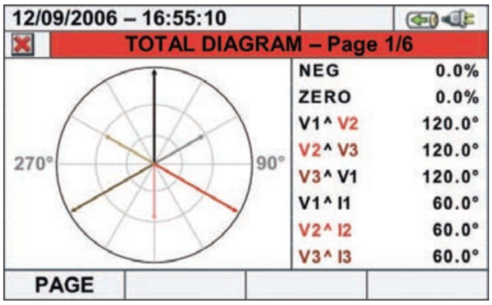
GENERAL MENU
Real Time Values

General menu function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TOTAL DIAGRAM – Page 1/6

NEG	0.0%
ZERO	0.0%
V1^V2	120.0°
V2^V3	120.0°
V3^V1	120.0°
V1^I1	60.0°
V2^I2	60.0°
V3^I3	60.0°

Vector diagram

Interfaces:
- *compact flash memory to extend the memory*
- *USB master to drive USB memory stick for data tansfer*

Each model is provided with 4 flexible clamps to measure phase and neutral currents

With
TOUCH SCREEN

HT
PQA 823
PQA 824
F1
F2
F3
F4
ENTER
ESC MENU
HELP
SAVE
GO STOP

PQA823
HV000823

PQA824
HV000824

PQA820
WATERPROOF, SELF-POWERED THREE-PHASE POWER QUALITY ANALYZER WITH USB AND WI-FI COMMUNICATION INTERFACE

PQA820 is a power quality analyzer performing an easy and wide analysis of the most significant parameters of the electrical system. Thanks to an innovative project, the instrument can be interfaced to smart phones, tablets and PDAs (iOS and/or Android) meeting the requests of the most demanding professionals. All the electrical parameters can be displayed in both numerical and graphical mode, by waveforms, histograms and phasors. The vector diagram shows the phase angle between any voltage and the related current, revealing the inductive or capacitive nature of the loads connected. The large built-in memory allows to log up to 383 parameters, granting a recording lasting more than one month with an integration period of 10 minutes. PQA820 records all parameters by default so avoiding any failure. The user will never miss recording the parameters he needs, since PQA820 records everything while selecting one of the three predefined settings (single phase, 3-phase without neutral, 3-phase with neutral). PQA820 is powered by an internal rechargeable Li-Ion battery with a built-in user-selectable L-N or L-L power supply. The Wi-Fi and the USB interfaces grant connection to smart phones, tablets, PDAs and PCs for instrument setting, recording start and stop, data downloading, and data analysis. Its IP65 waterproof hard carrying case allows PQA820 to work outdoors under critical environmental conditions.

FUNCTIONS

- DC voltage
- TRMS voltage with 4 inputs for line(s) and neutral (if any)
- DC current
- TRMS current with 4 inputs for line(s) and neutral (if any)
- DC power
- Active, reactive and apparent power and energy
- Power factor and cos-phi
- Frequency
- Up to 383 parameters to be recorded at once
- Integration period selectable from 5 seconds to 60 minutes
- Voltage and current harmonic analysis up to the 49th order
- Voltage anomalies (sags, swells) with 10ms resolution
- Numerical data analysis (DMM function)
- Graphical display of voltage and current (scope)
- Harmonic histogram
- Vectorial diagram of voltages and currents
- Voltage unbalance
- Predefined recording settings
- Built-in memory for data logging
- Wi-Fi and USB interfaces
- Android/iOS/Windows software
- Rechargeable Li-Ion battery with built-in power supply
- Waterproof IP65 hard carrying case

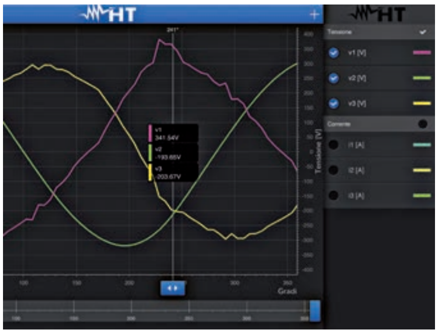
ACCESSORIES	Code
Standard	
Flexible transducer for 0÷100A, 0÷1000A AC current 174mm diameter, 4 pcs	HTFLEX33L
Set of 4 cables 2m	KITMPPACW
Set of 4 alligator clips	KITMPPACC
Magnetic adapter for connection to screw heads, 4 pcs	606-IECN
Windows software + USB cable	TOPVIEW2007
Carrying bag for accessories	BORSA2051
ISO9000 calibration certificate	
Quick reference guide	
User manual on CD-ROM	
Optional	
Transducer for 0÷200A, 0÷2000A AC current, Ø70mm	HP30C2 (*)
Transducer for 0÷1A, 0÷100A, 0÷1000A AC current, 54mm diameter	HT96U (*)
Transducer 3x1-5A/1V for connection to CTs	HT903 (*)
Transducer for 0÷1000A, DC current, Ø50mm	HT98U (*)
Transducer for 0÷1000A, DC current, Ø83mm	HP30D1 (*)

(*) necessary ACONBIN adapter for connection to the instrument (see pag. 91)

GENERAL SPECIFICATIONS	
Internal supply:	Li-ION rechargeable with built-in power supply, duration 1h
Mains supply:	100 ÷ 415V, 50/60Hz
Internal memory:	8Mbytes (approx. 30 days @ IP = 10min, max parameters)
PC interface:	USB 2.0
Remote device interface:	WiFi communication
Remote device interface:	Tablet/Smartphone (iOS, Android)
Safety:	IEC/EN61010-1
Insulation:	double insulation
Measurement category:	CAT III 300VAC (to ground) Max 460V between inputs
Dimensions (LxWxH):	245x210x110mm
Weight (battery included):	Approx. 0.7kg

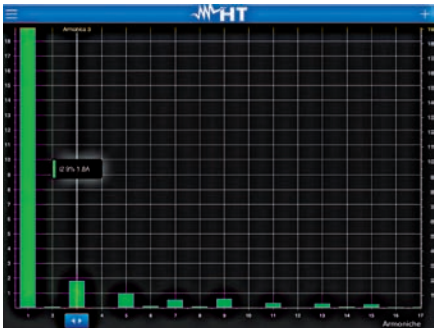
NEW
SINGLE PHASE
"SYSTEM" LED:
3 PHASE NO NEUTRAL
"SYSTEM" LED:
3 PHASE + NEUTRAL
"SYSTEM" LED:
IP65 (CLOSED CASE)

PQA820 is built in a tough and strong casing making it suitable to ***any environmental condition.***

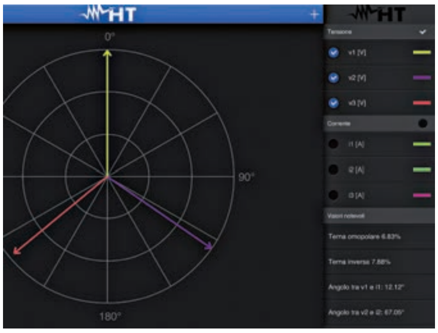


REAL-TIME

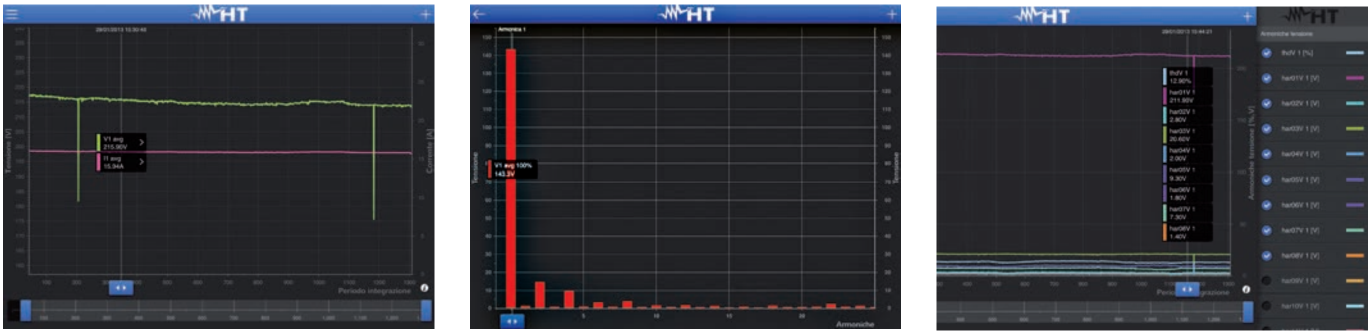
Instrument configuration through tablet or smartphone. *Quick and detailed display of all waveforms.*



Quick and detailed display of all harmonics relative to the selected quantities.

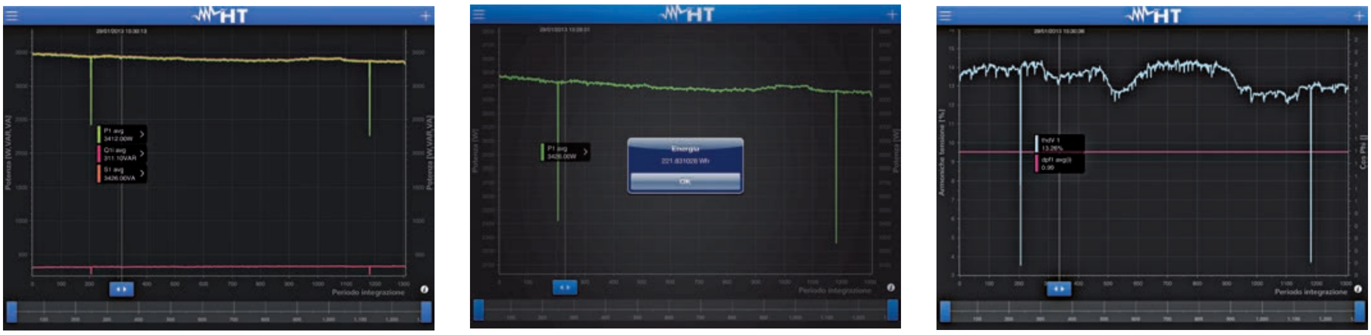


Real time vector diagrams (phasors), DMM function and THD%.



RECORDING OUTCOME

Zoom and quick access to any part of the recording, harmonic analysis at any quantity just through one touch. Trend of all recorded quantities selectable through menu can be displayed, such as frequency, voltages and currents, powers, cosphi, THD%, harmonics up to 49th order and THD%, etc. ***Fault tracing and maintenance have never been so easy.***



ENERGY CONSUMPTION

PQA820 can record all active, reactive and apparent powers over a long period, compare all of them with quantities such as cosphi, harmonics and THD%. Thanks to dynamic App HTanalysis it will be easy to find an immediate solution to energy-waste problem.

All PQA820 recordings can be analyzed by your smartphone or Tablet

With
***HTANALYSIS** APP*
(see pag. 4)

PQA820
HV000820

VEGA78
POWER QUALITY ANALYZER FOR SINGLE- AND THREE-PHASE PLANTS

Thanks to an innovative development, the instrument VEGA78 allows carrying out analysis and tests on single-phase and three-phase electric systems with and without neutral. VEGA78 displays in real time the values of all fundamental electric quantities which characterize the electric system being tested (voltage, current, active power, reactive power, apparent power, power factor, etc.), showing the waveforms of voltages and currents. VEGA78 is used for testing and analysing the quality of the electric service provided by the electric power supplier, for analysing single-phase and three-phase electric users such as offices and industries, when diagnosing voltage anomalies by taking advantage of the possibility of recording electric quantities. The instrument also allows evaluating the harmonic content introduced by non-linear loads such as computers, TV sets, controlled electric motors, etc. which can cause the RCD's tripping or a neutral overheating. The instrument is supplied with the PC management software, which further expands the analysis possibilities of the data acquired by the instrument.

FUNCTIONS

Recording
Each integration period (selectable) the instrument saves the maximum, minimum and average values of the parameters to be recorded (voltage, current, active power, reactive power, apparent power, power factor, etc.)

Voltage anomalies
To analyze voltage anomalies, the instrument tests the input voltages against two threshold values (which can be set against the nominal value of the voltage). If the read voltage is higher than the upper limit or lower than the lower limit, the instrument saves:
- Time (with second hundredths) and date when the phenomenon started.
- The duration of the phenomenon.
- The maximum (or minimum) value of voltage during the phenomenon

Harmonic analysis
With the increasing use of complex electronic machines, the analysis of an electric mains cannot leave out an accurate check of harmonics. With VEGA78, it is possible to analyze on the screen and to record the harmonic trend, against the fundamental, both for voltage and for current, as well as to measure the value of the total harmonic distortion (THD). The results of the analyses are shown on the display as curves, bargraphs, frequency percentage and numerical values

Voltage unbalance
Voltage unbalance degrades the performance and shortens the life of a three-phase motor. Voltage unbalance at the motor stator terminals causes phase current unbalance far out of proportion to the voltage unbalance. Unbalanced currents lead to torque pulsations, increased vibrations and mechanical stresses, increased losses, and motor overheating, which results in a shorter winding insulation life. It is recommended to regularly monitor voltages at the motor terminals to verify that voltage unbalance is maintained below 1%

With
TOUCH SCREEN
VEGA78
HV000078
HT
VEGA 78
POWER QUALITY ANALYZER
27/03/2008 17:56:34
SCOPE VOLTAGES - Page 1/5
V1 230.9V
PAGE
F1
F2
F3
F4
ENTER
ESC MENU
HELP
GO STOP
SAVE

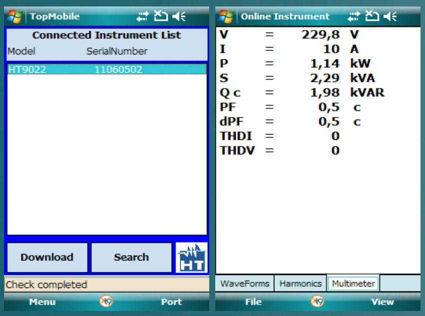
GENERAL SPECIFICATIONS

Display:	TFT, 65536 colors, 320x240pxl with high contrast, touch screen
Power supply:	1x3.7V Li-ION rechargeable battery with external adapter, duration 6h, auto power off after 5 min of idleness
Internal memory:	15Mbyes (approx. 3 months @ IP=15min and 251 parameters selected)
Memory extension:	external Compact Flash memory
PC interface	USB 2.0
Safety:	IEC/EN61010-1
Insulation :	double insulation
Measurement category:	CAT IV 600V (to ground) CAT IV 1000V (between inputs)
Dimensions (LxWxH):	235x165x75mm
Weight (batteries included):	Approx 1kg

ACCESSORIES	Code
Standard	
Flexible transducer for 0÷300A, 0÷3000A AC currents Ø 174mm, 4 pcs	HTFLEX33D
Set of 5 cables + alligator clips	KIT800
AC/DC 230V 50/60Hz mains adapter	A0055
Li-Ion 3.7V rechargeable battery	YABAT0003HT0
Pointer for "touch screen"	PT400
Windows software + USB cable	TOPVIEW2007
Rigid transport suitcase	VA500
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
Transducer for 0÷5A, 0÷100A AC currents Ø 20mm	HT4005N
Transducer for 0÷200A AC currents Ø 40mm	HT4005K
Transducer for 0÷1A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT96U
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U
Transducer for 0÷200A, 0÷2000A AC currents Ø 70mm	HP30C2
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3
Transducer for 0÷1000A DC currents Ø 50mm	HT98U
Transducer for 0÷1000A DC currents Ø 83mm	HP30D1
Flexible transducer for 0÷300A 0÷3000A AC currents Ø 274mm	HTFLEX35
Transducer 3x1-5A/1V for connection to CTs with accessories	HT903
Magnetic adapter for connection to screw heads	606-IECN
AC/DC 115V/50-60Hz mains adapter - US plug	A0056
Hard carrying case	VA400
Free hands kit	SP-0400
Compact flash memory card	CF800
USB compact flash card reader	MCR800

HT9022
CLAMP-ON POWER QUALITY ANALYZER WITH BLUETOOTH CONNECTION

HT9022 is a combination of a power quality analyzer, a phase sequence/conformity detector, a clamp meter and a voltage detector in one single handy device. The advanced design of HT9022 ensures reliable and accurate measurements under a wide range of operating conditions. HT9022 is the ideal instrument for troubleshooting power quality problems, calculating power factor correctors, recording energy consumption, recording DC power, etc. Unlike the data loggers that take snapshots of the electrical parameters in regular intervals, losing what happens between an interval and the next, HT9022 continuously records all electrical parameters as a true power quality analyzer. The internal memory enables long-term recording for further download to (and analysis at) a PC, or a portable PDA with Bluetooth connection. HT9022 is flexible and portable to grant the user the most reliable measurements with an easy-to-use interface.



Connected Instrument List

Model	SerialNumber
HT9022	11060502

Check completed

```
V     =   229,8  V
I     =      10  A
P     =    1,14  kW
S     =    2,29  kVA
Q c   =    1,98  kVAR
PF    =     0,5   c
dPF   =     0,5   c
THDI  =       0
THDV  =       0
```

Screenshot of Win Mobile software

Connecting the instrument

FUNCTIONS

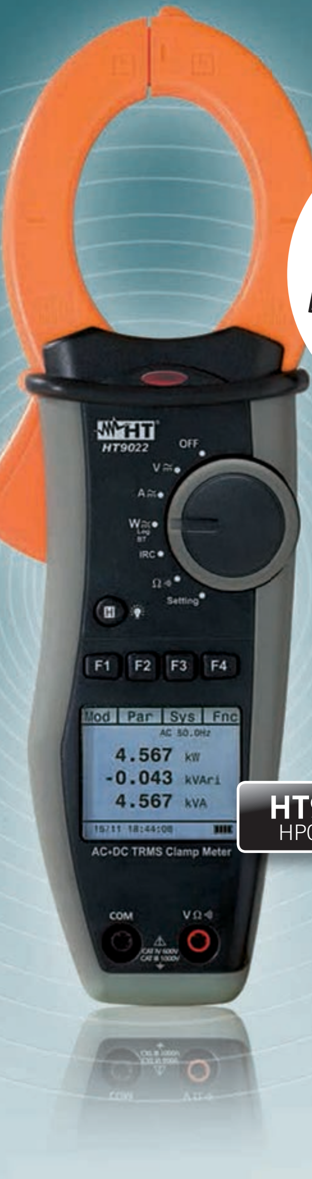
- Measuring/recording of DC and AC+DC TRMS voltage
- Measuring/recording of DC and AC+DC TRMS current
- Phase sequence and conformity
- Measuring/recording of active, reactive and apparent power, power factor in single-phase and balanced three-phase systems
- Measuring/recording of active, reactive and apparent energy in single-phase and balanced three-phase systems
- Measuring/recording V / I harmonics up to the 25th order and THD%
- Measuring/recording of DC power
- Measuring/recording of current and voltage frequency
- Resistance measurement and continuity test with buzzer
- Inrush current
- Non-contact AC voltage detection with built-in sensor
- MAX/MIN/CREST
- Bluetooth connection

ACCESSORIES	Code
Standard	
Couple of test leads	YAAMK0000HT0
Couple of alligator clips	YAAMK0001HT0
Carrying bag	YABRS0000NN0
Batteries	
ISO9000 calibration certificate	
User manual	
Quick reference guide	
Wndows software	TOPVIEWS
Win Mobile 6.1 software for PDAs connection	

GENERAL SPECIFICATIONS

Display:	Dot matrix 128x128 with backlight
Power supply:	2x1,5V batteries AAA
Battery life:	>50h
Internal memory:	2Mb
PC interface:	Bluetooth
Safety:	IEC / EN61010-1, IEC / EN61010-2 – 032
Measurement category:	CAT IV 600V to the ground, max 1000V between the inputs
Insulation:	double insulation
Pollution degree:	2
Max diameter of the cable:	45mm
Dimensions (LxWxH):	252x88x44mm
Weight (batteries included):	420g

www.youtube.com/user/HTinstruments1



With
BLUETOOTH

Win Mobile real-time viewing

HT9022
HP009022

XL421 - XL422 - XL423 - XL424

DATA LOGGERS FOR SINGLE-PHASE AND THREE-PHASE TRMS CURRENT AND VOLTAGE

XL421, XL422, XL423 and XL424 are innovative portable Data Loggers, capable of measuring AC current and voltage in real efficient (TRMS) value up to 2500A and 600V respectively, in single-phase or three-phase electric systems. These instruments are very useful especially in the industrial sector (evaluations of electric load consumption, verification of nominal power of transformers, measurement of mains voltage, unbalanced loads, etc.) and are extremely versatile due to their small size, thanks to which they are easily installed also as panel units. These models are enclosed in a practical and safe plastic case, with a high mechanical protection index IP65 (protected both against dust and water sprays); they are, therefore, suitable for use in common industrial environments. These models are provided with appropriate in-built flexible clamps or cables with alligator clips respectively, which allow safely carrying out current and voltage measurements (also on cables and/or big bars). Thanks to a sophisticated internal memory algorithm, continuous recordings are possible also for prolonged time intervals and, therefore, it is possible to accurately monitor electric mains. Further to internal programming, the provided Windows software allows downloading and analyzing on the PC the results of the recordings, in order to produce useful print reports on measurements. Clear LED indications on the front panel allow a simple use, also by non-expert users.

FUNCTIONS	XL421	XL422
TRMS current measurement	Single phase	Three phase
Measurement range	1 ÷ 2500A AC	
Accuracy	±(1.0%rdg+1dgt)	
Resolution	1A	
Frequency range	50±6Hz, 60±6Hz	
Bandwidth	3200Hz	
Sample rate	64 points in 20ms	
Integration period	1s, 6s, 30s, 60s, 5min	
Memory size	1Mbyte	
PC serial interface	RS-232	
Integration period	Recording duration (days)	
1s	5	1,5
6s	34	8
30s	170	42
60s	364(*)	91
5min	1820(*)	455(*)

(*) Depending on battery life

FUNCTIONS	XL423	XL424
TRMS current measurement	Single phase	Three phase
Measurement range	0 ÷ 600V AC	
Accuracy	±(1.0%rdg+1dgt)	
Resolution	0.1V	
Frequency range	50±6Hz, 60±6Hz	
Bandwidth	3200Hz	
Sample rate	64 points in 20ms	
Integration period	1s, 6s, 30s, 60s, 5min	
Memory size	1Mbyte	
PC serial interface	RS-232	
Integration period	Recording duration (days)	
1s	5	1,5
6s	34	8
30s	170	42
60s	364(*)	91
5min	1820(*)	455(*)

(*) Depending on battery life

GENERAL SPECIFICATIONS	
Front panel indication	LED
Power supply	2x1.5V batteries type AA LR6
Battery life	>6months (fully charge batteries)
Safety	IEC/EN61010-1
Measurement category	CAT IV 600V (to ground)
Insulation	double insulation
Pollution degree	2
Mechanical protection index	IP65
Max altitude	2000m
Max diameter of flexible clamps	174mm *(only XL421 and XL422)*
Dimensions (LxWxH):	120x80x43mm
Weight (batteries included)	500g

ACCESSORIES	Code
Standard	
Integrated flexible clamp 3000A *(1 pcs for XL421, 3 pcs for XL422)*	HTFLEX33DL
Set of 2 test leads with alligator clips *(only XL423)*	KITXL423C
Set of 4 test leads with alligator clips *(only XL424)*	KITXL424C
Adesive velcro 50x70mm	VELCRO
PC Windows software with RS-232 cable	TOPVIEW2004
Carrying bag	BORSA2000
Batteries	
User manual	
Optional	
USB to RS-232 adaptor	C2009

XL423
HV000423
XL424
HV000424
XL421
HV000421
XL422
HV000422
XL422
XL424

INSTRUMENTS FOR VERIFIES, ANALYSIS, CHECKS AND MAINTENANCE OF PV INSTALLATIONS

INSTRUMENTS FOR TESTING AND VERIFYING
PHOTOVOLTAIC INSTALLATIONS

Model	SOLAR 200	PV CHECK	SOLAR 300N	I-V400	SOLAR I-V	MPP300
Continuity of protective conductors with 200mA	•					
Insulation with test voltages of 50, 100, 250, 500, 1000V DC	•	• (250, 500, 1000)				
String mode and field mode insulation						
Tripping time and current of RCDs type A, AC up to 500mA	•					
Impedance Line/Loop, also with high resolution (0.1mΩ), and Ipsc calculation	•					
Total earth resistance with no RCD tripping	•					
Phase sequence	•		•			
DC/AC TRMS voltage/current on single-phase systems		• (DC only)	•		•	•
DC/AC TRMS voltage/current on three-phase systems		• (DC only)	•			•
DC/AC powers on single-phase systems		• (DC only)	•		•	•
DC/AC powers on three-phase systems		• (DC only)	•			•
Power factor (cos φ) on single-/three-phase systems			•			
Energies on single-phase and three-phase systems			•			
Recording of mains parameters with programmable IP		• (5s-60m)	• (1s-60m)		• (5s-60m)	
Maximum number of quantities contemporarily selectable		5	251		9	
Harmonic analysis of voltages/currents up to the 49th order			•			
Detection of voltage anomalies (dips, peaks) in 10ms			•			
Complete analysis according to EN50160			•			
Inrush current of electric motors			•			
Voltage fast transients (spikes) with a resolution of 5μs (200kHz)			•			
Voltage unbalance (NEG%, ZERO%) and Flicker (Pst, Plt)			•			
Display of vector diagrams and waveforms of voltages/currents			•			
Indication of recording autonomy			•			
Default and customizable recordings			•			
TFT touch-screen colour display			•			
LCD custom backlit display	•	•		•	•	
Power supply by rechargeable battery and by means of external power supplier			•			•
Use of remote unit		•	•	•	•	•
Efficiency measurement/recording of single-string system		• (DC only)	•		•	•
Efficiency measurement/recording of multi-string system up to 3 MPPTs			• (with MPP 300)		• (with MPP 300)	•
Efficiency measurement/recording of single-phase system			•		•	•
Efficiency measurement/recording of three-phase system			•		• (with MPP 300)	•
Irradiation measurement with reference solar cell		•	•	•	•	
Temperature measurement of modules and environment		•	•	•	•	
Detection of I-V curve of modules and strings				• (1000V, 10A)	• (1000V, 10A)	
Quick test mode		• (1000V, 10A)		• (1000V, 10A)	• (1000V, 10A)	
Internal database of PV modules		•		•	•	
Measurement of modules and strings data (Voc, Vmpp, Impp, Isc, Pmax, FF, Dpmax)		•		•	•	
Auto power off	•	•	•	•	•	•
Memory capacity	500 locations	999 locations	1 month @ PI=15min, 251 par	> 200 curves	> 200 curves 8 days @ PI=10min	2 Mbyte
Extension of internal memory with external Compact Flash			•			
USB port for connection of external memory sticks			•			
PC interface with software for Windows	• (optical/USB)	• (optical/USB)	• (USB)	• (optical/USB)	• (optical/USB)	
Context-sensitive help on the display	•	•	•	•	•	
Saving of recordings and instant values		•	•	•	•	
Dimensions (LxWxH) (mm)	235x165x75	235x165x75	235x165x75	235x165x75	235x165x75	300x265x140
Weight (batteries included)	1,2 Kg	1,2 Kg	1 Kg	1,2 Kg	1,3 Kg	2,3 Kg
Safety in compliance with IEC/EN61010-1	•	•	•	•	•	•
Page	15	16-17	18-19	20-21	22-23	24-25

SOLAR200
MULTIFUNCTION INSTRUMENT FOR SAFETY VERIFICATION OF SINGLE-PHASE AND THREE-PHASE PHOTOVOLTAIC SYSTEMS

SOLAR200 is an innovative instrument designed for carrying out electrical safety verifications on photovoltaic systems in compliance with the relevant safety requirements. The instrument is very easy to use and has a wide range of functions which can be selected by means of the simple multi-language menu. Measurements can be started both by pressing the button located on the instrument body and by pressing the button located on the switch probe (optional accessory PR400) which makes carrying out more measurements in sequence very simple. The help on line, which can be selected by the user and is active for any function, is a valid support for the connection of the instrument to the system to be tested. SOLAR200 is provided with an internal memory and an optical/USB interface for PC connection and for transferring measured data, which can be analyzed with the dedicated software.

FUNCTIONS

- Continuity of protective conductors with 200mA
- Insulation with test voltages of 50, 100, 250, 500, 1000VDC
- Tripping time of RCDs type A, AC, general and selective, with nominal current up to 500mA
- Tripping current of RCDs type A, AC, general and selective, with nominal current up to 500mA
- Impedance of Loop/Line P-N, P-P, P-PE, also with high resolution (0,1mΩ with optional accessory IMP57), and Ipsc calculation.
- Total earth resistance with no RCD tripping
- Contact voltage
- Phase sequence
- Activation of measurements with optional switch probe PR400
- Help on line on the display
- Saving of results
- Optical/USB interface for PC connection

GENERAL CHARACTERISTICS

Display:	LCD custom, backlit
Power supply:	6x1.5V alkaline bat. type AA IEC LR06
Internal memory:	500 locations
PC interface:	optoisolated optical connector
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT III 240V (to earth), CAT III 415V (between inputs)
Reference standards:	IEC/EN61557-1
Dimensions:	235x165x75mm
Weight (bat. included):	approx. 1.25kg

Optional accessories

IMP57
Accessory for measuring loop impedance with high resolution

PR400
Switch probe

ACCESSORIES	Code
Standard	
Cable with three-pin shuko plug	C2033X
Kit of 3 cables + 3 alligator clips + 1 probe	UNIVERSALKIT
Transport bag	BORSA75
User manual	
Calibration certificate ISO9000	
Optional	
Windows software for PC + optical/USB cable	TOPVIEW2006
Switch probe	PR400
Accessory for measuring loop impedance with high resolution	IMP57
Kit of belts for slinging the instrument over one's shoulder	SP-0400

HT
SOLAR 200
SOLAR SYSTEMS ANALYZER
MΩ
----MΩ
----V
---s
TMR
50V 0.25M 10s
FUNC UNom Lim Time
ENTER
ESC MENU
HELP
GO STOP
SAVE

SOLAR200
HV000200

PVCHECK
MULTIFUNCTION INSTRUMENT TO CHECK SAFETY, PARAMETERS AND PERFORMANCE OF A PV PLANT

The multifunction instrument PVCHECK allows prompt and safe electrical checks required for a PV system (section DC) as well as controls on working of modules / strings in accordance with IEC/EN62446 guidelines. PVCHECK verifies the continuity of the protective conductors (and the associated connections) and executes insulation resistance measurement of the active conductors on a module, a string or a photovoltaic field in accordance with the requirements of IEC/EN62446, without the need of short-circuiting the positive and negative terminals. PVCHECK allows verification of a PV string's working in accordance with the requirements of IEC/EN62446 by measuring the open circuit voltage and short-circuit current under operating conditions and reporting the results to STC (by means of radiation measurement). It provides an immediate outcome for both absolute measurements and for measurements compared with the previously tested PV strings. PVCHECK also allows carrying out performance analysis of PV array (DC) under operating conditions (connected to the inverter) providing an indication of the power generated and the efficiency of the field as specified by IEC/EN62446.

FUNCTIONS

Safety test on PV installation
- Continuity test on protective conductors with 200mA
- Insulation test with test voltage of 250, 500, 1000VDC

DC efficiency of PV installation
- DC voltage, DC current, DC Power
- Solar irradiation [W/m^2] with reference cell
- Environmental and module temperature by means of PT1000 probe
- SOLAR-02: remote unit for irradiance and temperature measurements
- Recording of PV plant parameters (DC side) with programmable IP (5s – 60m)
- Use of PDC compensation ratios according to environmental and module temperature
- Use of relationship to maximize the DC efficiency
- Outcome OK/NO

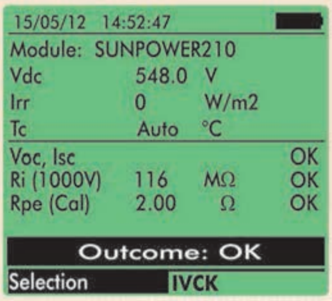
Performance of PV modules / strings
- Measurement of open circuit voltage up to 1000V DC
- Measurement of short circuit current up to 10A DC
- Measurement of temperature, automatic or by means of PT1000probe
- Measurement of solar radiation [W/m^2] with reference cell
- Mechanical inclinometer for the detection of solar radiation incidence angle
- Data extrapolation to standard test conditions (1000W/m^2, 25°C)
- Outcome: OK / NO
- Database to manage up to 30 types of photovoltaic modules

ACCESSORIES	Code
Standard	
Kit of 4 cables with 4mm banana plugs + 4 alligator clips	KITGSC4
Kit of 2 adapters with MC3 compatible connectors	KITPCMC3
Kit of 2 adapters with MC4 compatible connectors	KITPCMC4
Trasducer for DC currents 0÷10 - 0÷100A diameter 30 mm	HT4004
Windows software + optical/USB cable C2006	TOPVIEW2006
Transport bag	BORSA2051
User manual	
Calibration certificate ISO9000	
Optional	
Probe PT1000 for cell temperature measurement	SOLAR-02
Reference cell for irradiation measurement	HT304N
Kit of belts for slinging the instrument over one's shoulder	SP-0400
Remote unit to record irradiation and temperature	SOLAR-02
Mechanical inclinometer	M304
Rigid transport suitcase	VA400

GENERAL CHARACTERISTICS	
Display:	LCD Custom, 128x128pxl, backlight
Power supply:	6x1.5V alkaline bat. type AA LR06
Auto power off:	after 5 minutes in stand-by
Internal memory:	256kBytes
PC interface:	optoisolated optical/USB port
Safety:	IEC/EN61010-1
Meas. accessory safety:	IEC/EN61010-031
Measures:	IEC/EN 62446
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT III 300V (to earth) Max 1000V between inputs
Dimensions:	235x165x75mm
Weight (batteries included):	1.2kg

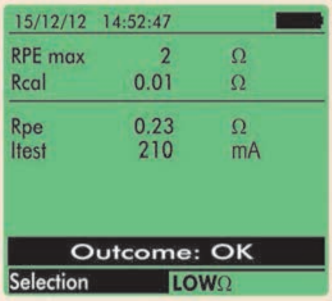
HT
15/05/12
Modules
Vdc
Irr
Tc
Voc, Is
Ri (10
Rpe

PVCHECK
HV000PVC



```
15/05/12  14:52:47
Module:  SUNPOWER210
Vdc          548.0  V
Irr          0      W/m2
Tc           Auto   °C
Voc, Isc                    OK
Ri (1000V)   116    MΩ      OK
Rpe (Cal)    2.00   Ω       OK
        Outcome: OK
Selection        IVCK
```

Auto Test: Voc, Isc+ insulation resistance + continuity test

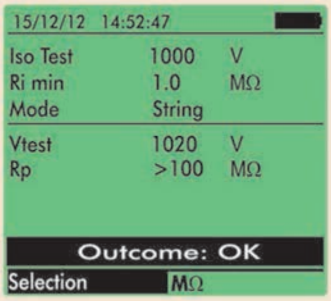


```
15/12/12  14:52:47
RPE max        2      Ω
Rcal           0.01   Ω

Rpe            0.23   Ω
Itest          210    mA

        Outcome: OK
Selection        LOWΩ
```

LOWΩ: 200mA continuity test

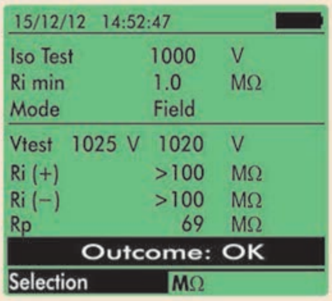


```
15/12/12  14:52:47
Iso Test       1000    V
Ri min         1.0     MΩ
Mode           String

Vtest          1020    V
Rp             >100    MΩ

        Outcome: OK
Selection        MΩ
```

MΩ: string mode insulation resistance measurement

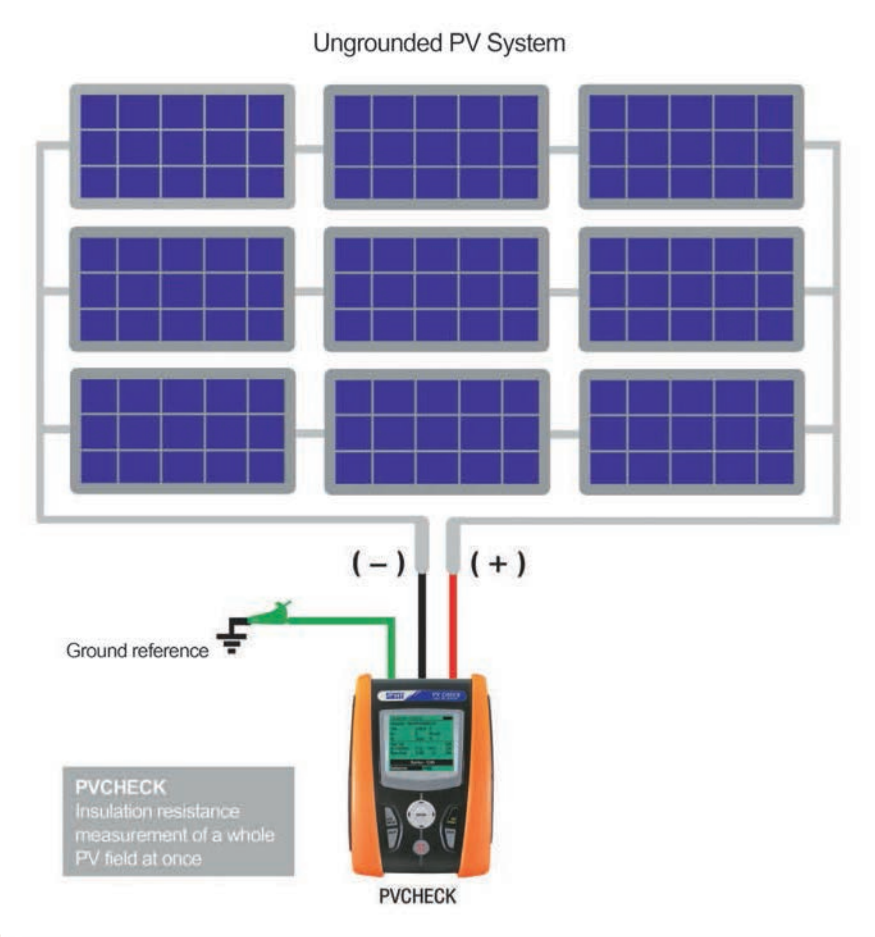


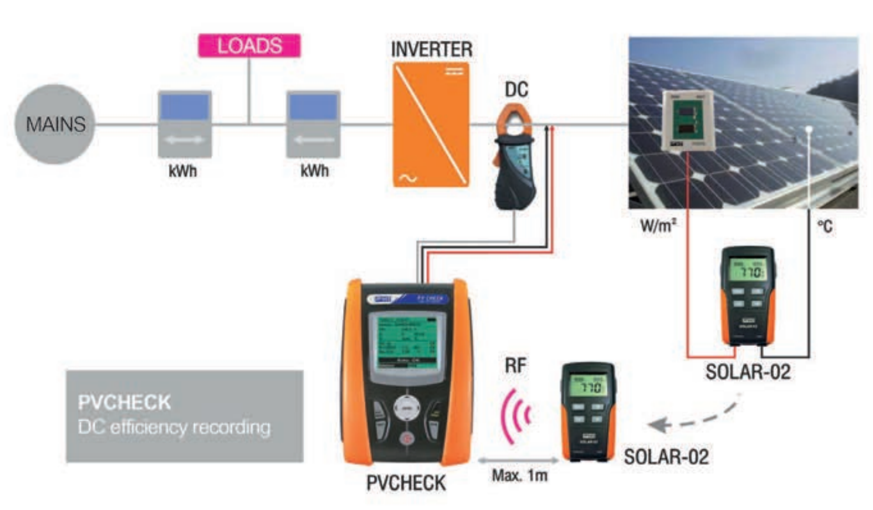
```
15/12/12  14:52:47
Iso Test           1000    V
Ri min             1.0     MΩ
Mode               Field

Vtest    1025 V    1020    V
Ri (+)             >100    MΩ
Ri (−)             >100    MΩ
Rp                 69      MΩ
        Outcome: OK
Selection          MΩ
```

MΩ: field mode insulation resistance measurement

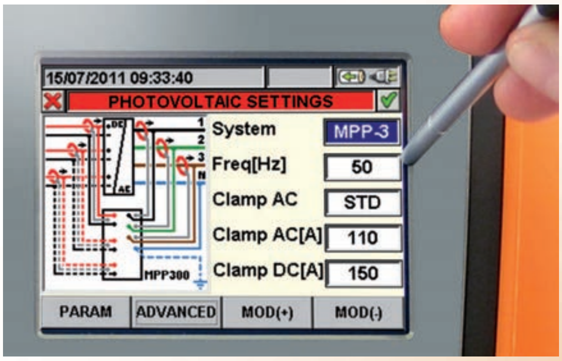
PV CHECK
FULL PV TESTER
14:52:47
SUNPOWER210
548.0 V
0 W/m2
Auto °C
OK
OK
OK
116 MΩ
2.00 Ω
Outcome: OK
IVCK
ENTER
ESC MENU
HELP
GO STOP
SAVE


Ungrounded PV System
(–)
(+)
Ground reference
PVCHECK
Insulation resistance measurement of a whole PV field at once
PVCHECK

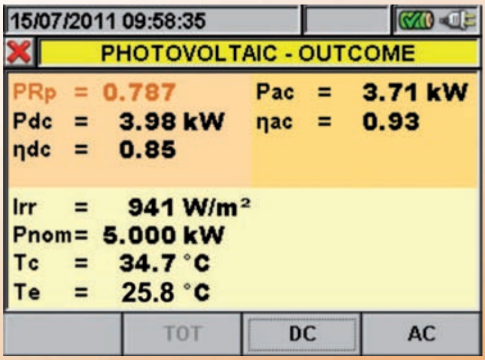

LOADS
INVERTER
DC
MAINS
kWh
kWh
W/m²
°C
SOLAR-02
RF
SOLAR-02
PVCHECK
DC efficiency recording
PVCHECK
Max. 1m

SOLAR300N
MULTIFUNCTION INSTRUMENT FOR TESTING SINGLE-PHASE AND THREE-PHASE PHOTOVOLTAIC SYSTEMS AND ANALYZING MAINS QUALITY IN COMPLIANCE WITH STANDARD EN50160

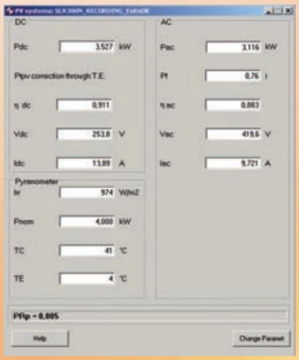
SOLAR300N allows carrying out all tests required for the verification of the efficiency of single-phase and three-phase photovoltaic systems. Testing photovoltaic systems requires contemporarily measuring environmental parameters (incident irradiation of modules, temperature of environment and modules) and electric parameters (continuous power, alternating power, etc.). Typically, modules and inverter can be positioned even at several tens of meters of distance, thus forcing the operator to carry out measurements in different places far from each other at the same time. To carry out these operations, connections by means of long cables or (wireless) radio connections could be necessary, but both these solutions are not acceptable. Cables could hamper the operator's movements or be a hindrance, while radio waves would be attenuated by floors, reinforced concrete or metal structures, thus making communication impossible.In order to avoid the above-mentioned problems and to carry out measurements with the necessary contemporaneity, SOLAR300N is provided with a remote unit, synchronized with the main unit. The remote unit is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters (irradiation and temperature). SOLAR300N is connected upstream and downstream of the inverter in order to acquire the electric parameters (continuous power and alternating power). The synchronization between the two units guarantees the necessary contemporaneity of measurements, the two separate and independent units make measurements comfortable and safe. The instrument can be interfaced with accessory MPP300, which extends the characteristics of SOLAR300N by enabling recordings on single-phase and three-phase, single-string and multi-string (up to three strings), single-inverter and multi-inverter photovoltaic systems (therefore also in three-phase systems provided with three single-phase inverters). SOLAR300N is also a powerful instrument for the complete analysis of mains quality in compliance with standard EN50160 (harmonic analysis, analysis of voltage anomalies, flicker, unbalance, etc.). The management software TopView also provides the possibility of creating professional reports, which can be customized by adding the company's logo, the customer's data, comments, etc.


15/07/2011 09:33:40
PHOTOVOLTAIC SETTINGS
System MPP-3
Freq[Hz] 50
Clamp AC STD
Clamp AC[A] 110
Clamp DC[A] 150

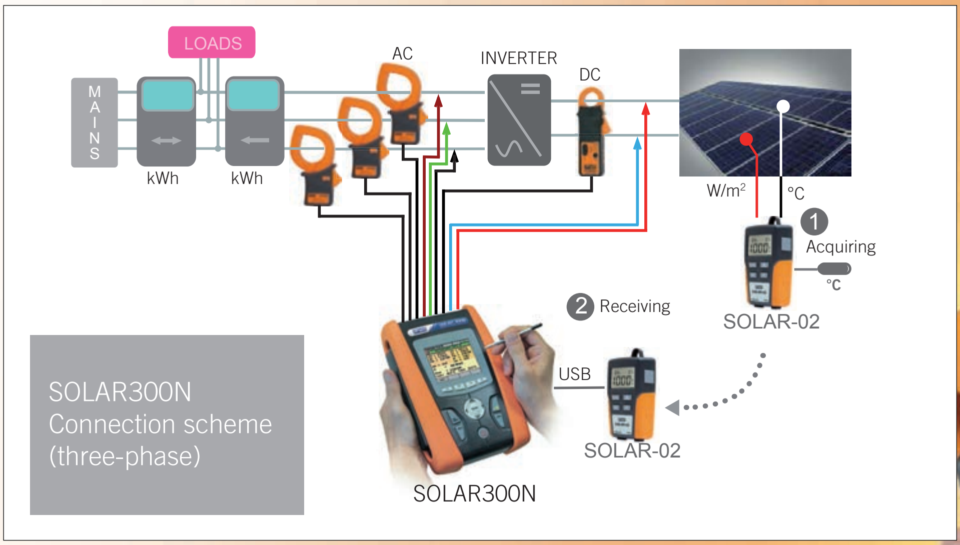
Graphical touch-screen display


15/07/2011 09:58:35
PHOTOVOLTAIC - OUTCOME
PRp = 0.787
Pdc = 3.98 kW
ηdc = 0.85
Pac = 3.71 kW
ηac = 0.93
Irr = 941 W/m²
Pnom= 5.000 kW
Tc = 34.7 °C
Te = 25.8 °C

Testing result on the display of SOLAR300N


DC
Pdc 3.527 kW
Ptpv correction through T.E.
η dc 0.911
Vdc 253.8 V
Idc 13.89 A
Pyranometer
Irr 974 W/m2
Pnom 4.000 kW
TC 41 °C
TE 4 °C
AC
Pac 3.116 kW
Pf 0.76 i
η ac 0.883
Vac 419.6 V
Iac 9.721 A
PRp = 0.885

Testing result on TopView software



SOLAR300N
Connection scheme
(three-phase)

Some standard accessories

HT4004N

HT4005K (3 pcs)

SOLAR-02

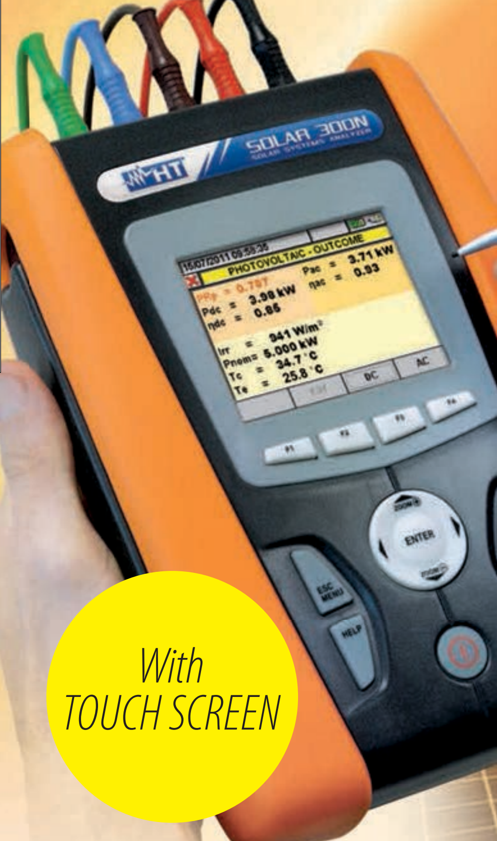
HT304N

Some optional accessories

606-IECN

HP30D1

Multistring with MPP300



FUNCTIONS

- DC/AC TRMS (single/three-phase) voltage measurement
- DC/AC TRMS (single/three-phase) current measurement
- DC/AC (single/three-phase) power measurement
- AC (single/three-phase) energy measurement
- Measurement of power factor (single/three-phase)
- Measurement of solar irradiation [W/m^2]
- Measurement of environmental and module temperature
- Three-phase up to three strings PV systems (with MPP300)
- Recording of voltage and current harmonics up to the 49th
- Recording of voltage anomalies (dips, peaks)
- Flicker analysis in compliance with standard EN50160
- Recording of starting currents with a resolution of 10ms
- Recording voltage fast transients (spikes) with a resolution of 5µs
- Analysis of mains quality in compliance with EN50160
- Numerical and graphical display of each quantity
- Recalling results on the display
- TFT colour display with touch screen
- Power supply with rechargeable Li-ION battery
- Memory extension by means of CF card
- Data transfer to external USB memory (memory stick)
- USB port for PC connection
- Help on line on the display

Professional transport suitcase

SP-0400 hands-free kit

You Tube

www.youtube.com/user/HTinstruments1

SOLAR300N
HV00300N-0202

GENERAL CHARACTERISTICS

Display:	TFT, 65536 colours, (320x240pxl), high contrast, touch screen
Power supply:	1x3.7V rechargeable Li-Ion battery with external power supply, duration > 6h, auto power off after 5 min in stand-by
Internal memory:	15Mbyte (duration approximately 3 months @ IP = 15min and 251 parameters selected)
Memory extension:	compact flash (CF card)
PC interface:	USB 2.0
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT IV 600V (to earth) CAT III 1000V (between inputs)
Unbalance:	IEC/EN61000-4-7
Power quality:	IEC/EN50160
Flicker:	IEC/EN61000-4-15
Electric power quality:	IEC/EN61000-4-30 Class B
Dimensions:	235x165x75mm
Weight(batteries incl.)	approx. 1kg

ACCESSORIES	Code
Standard	
Remote unit to record irradiation and temperature	SOLAR-02
Kit of 5 cables + alligator clips for voltage measurement	KIT800
Transducer for AC 0÷200A, diameter 40mm, 3 pcs	HT4005K
Transducer for AC/DC currents 0÷10 - 0÷100A, diameter 32mm	HT4004N
Sensor for irradiation measurement	HT304N
Probe PT1000 for panel temperature	PT300N
AC/DC power supply	A0055
Rechargeable 3.7V Li-Ion battery	YABAT003HT0
Touch-screen pen	PT400
Widows software + USB cable	TOPVIEW2007
Rigid transport suitcase	VA500
User manual on CD-ROM	
Rapid user guide	
Calibration certificate ISO9000	
Optional	
Multi-string three-phase adaptor	MPP300
Transducer for 0÷5A, 0÷100A AC cur. Ø 20mm	HT4005N
Transducer for 0÷200A, AC currents Ø 40mm	HT4005K
Transducer for 0÷1A, 0÷100A, 0÷1000A AC cur. Ø 54mm	HT96U
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U
Transducer for 0÷200A, 0÷2000A AC cur. Ø 70mm	HP30C2
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3
Transducer for 0÷1000A DC currents Ø 50mm	HT98U
Transducer for 0÷1000A DC currents Ø 83mm	HP30D1
Flexible clamp AC 3000A, diameter 174mm (*)	HTFLEX33D
Flexible clamp AC 3000A, diameter 274mm (*)	HTFLEX35
Interface 3x1-5A/1V for connection of external CTs	HT903
Kit of belts for slinging the instrument over one's shoulder	SP-0400
Magnetic adapter for connection to screw heads	606-IECN
AC/DC 115V/50-60Hz mains adapter - US plug	A0056
Compact flash memory card	CF800
USB compact flash card reader	MCR800

(*) only for using the instrument as power quality analyzer

I-V400

MULTIFUNCTION INSTRUMENT FOR VERIFICATION OF I-V CHARACTERISTIC OF PHOTOVOLTAIC STRINGS AND MODULES

I-V 400 is the ideal solution for the ordinary and scheduled maintenance of photovoltaic systems. With I-V 400, searching for possible failures and problems in systems is extremely rapid, efficient and intuitive. I-V 400 carries out the field measurement of the I-V characteristic and of the main characteristic parameters both of a single module and of module strings. The instrument measures, together with the I-V characteristic of the device being tested, also the values of its temperature and incident irradiation. The acquired data are then processed to extrapolate the I-V characteristic at standard test conditions (STC) in order to proceed with the comparison with the nominal data declared by the modules' manufacturer, thus immediately determining whether or not the string or the module being tested respects the characteristics declared by the manufacturer. In some PV installations, such as roof-top installations, it may be difficult to access the module output cables. An access to the cables at the combiner box or at the inverter's inputs may be the only chance. In this case the measurement of I-V characteristics can be achieved by measuring the environmental parameters (irradiation and temperature) through the remote optional unit SOLAR-02. The remote unit is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters. The synchronization between the two units guarantees the necessary contemporaneity of measurements making possible the extrapolation of the I-V curve at STC without using long extension cords cable.

Output current or voltage from the module or string is measured with the 4-terminal method, which allows extending the measurement cables without requiring any compensation for their resistance, thus always providing accurate and precise measurements. In its internal memory, I-V 400 manages a database of photovoltaic modules, which can be updated at any time both via the management software and directly on the instrument. Together with the measurement of the I-V characteristic and the extrapolation of the characteristic at standard test conditions, I-V 400 compares the obtained values with the values declared by the manufacturer, immediately providing the OK / NO result of the test. The operator must not do any calculation, nor any difficult operation. The instrument carries out the comparison rapidly and automatically.

FUNCTIONS

- Measurement of output voltage from module/string up to 1000V DC
- Measurement of output current from module/string up to 10A DC
- Measurement of solar irradiation [W/m^2] with reference cell
- Measurement of module temperature, automatic or by means of external probe
- Measurement of output DC and nominal power of module/string
- Synchronization with remote unit SOLAR-02
- Numerical and graphical display of I-V characteristic
- Quick test mode
- Measurement of the resistance of photovoltaic module series
- Mechanical inclinometer for the detection of the incidence angle of solar irradiation
- 4-terminal measuring method
- Extrapolation to standard test conditions (STC)
- Evaluation of testing result: OK / NO
- Management of up to 30 types of photovoltaic modules in the internal database
- Internal memory for data saving
- Recalling results on the display
- Optical/USB port for PC connection
- Help on line on the display

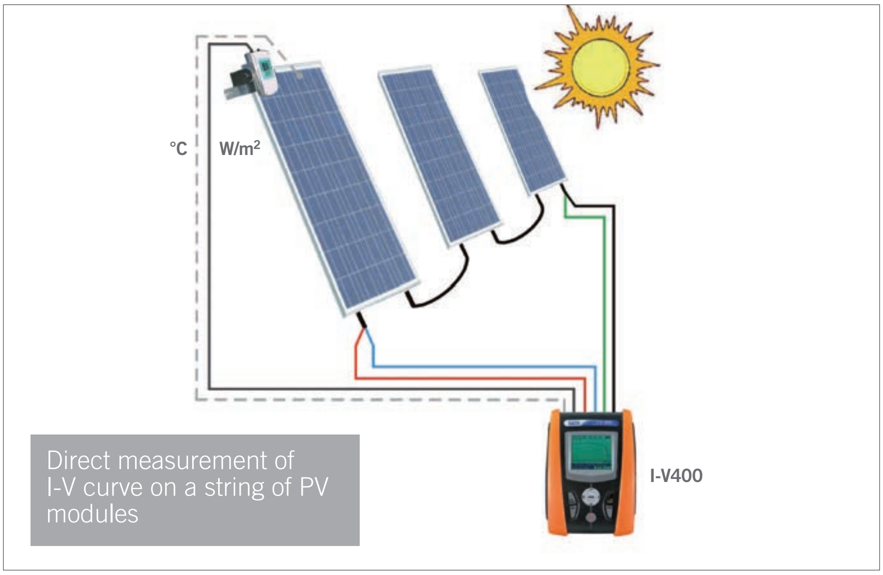
ACCESSORIES	Code
Standard	
Kit of 4 cables with 4mm banana plugs + 4 alligator clips	KITGSC4
Kit of 2 adapters with MC3 compatible connectors	KITPVMC3
Kit of 2 adapters with MC4 compatible connectors	KITPVMC4
Reference cell for irradiation measurement	HT304N
Mechanical inclinometer	M304
Windows software + optical/USB cable C2006	TOPVIEW2006
Rigid transport suitcase	VA500
User manual	
Calibration certificate ISO9000	
Optional	
Probe PT1000 for cell temperature measurement	PT300N
Kit of belts for slinging the instrument over one's shoulder	SP-0400
Remote unit to record irradiation and temperature	SOLAR-02
KIt of 2 cables banana 4mm, green/black, 25m	KITPVEXT25M
Rigid transport suitcase	VA400

GENERAL CHARACTERISTICS	
Display:	LCD Custom, 128x128pxl, backlit
Power supply:	6x1.5V alkaline bat. type AA LR06
Auto power off:	after 5 minutes in stand-by
Internal memory:	256kBytes
Curves which can saved:	> 200
PC interface:	optoisolated optical/USB port
Safety:	IEC/EN61010-1
Meas. accessory safety:	IEC/EN61010-031, IEC/EN10-032
Measures:	IEC/EN 60891, IEC/EN 62446
Insulation:	double insulation
Pollution degree:	2
Measurement category:	CAT II 1000V, CAT III 300V (to earth) Max 1000V between inputs
Dimensions:	235x165x75mm
Weight (batteries included):	1.2kg

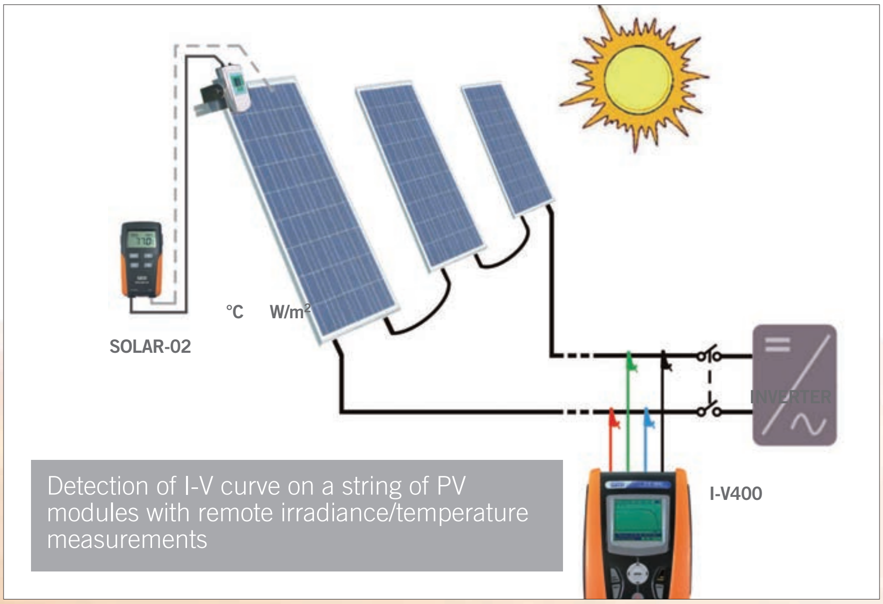
Some standard accessories

HT304N

M304



Direct measurement of I-V curve on a string of PV modules


SOLAR-02
°C
W/m²
INVERTER
I-V400

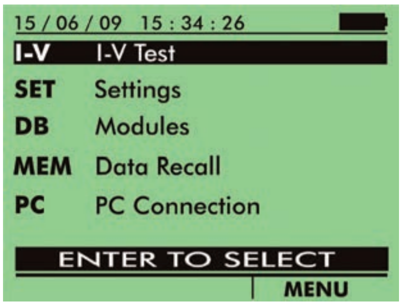
Detection of I-V curve on a string of PV modules with remote irradiance/temperature measurements

www.youtube.com/user/HTinstruments1

HT
I-V 400
PHOTOVOLTAIC PANEL ANALYZER
ENTER
ESC MENU
GO STOP
HELP
SAVE

I-V400
AN INSTRUMENT WITH UNIQUE FEATURES

I-V400
HV00400V

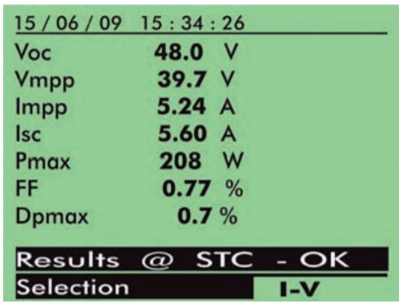


15 / 06 / 09 15 : 34 : 26

I-V	I-V Test
SET	Settings
DB	Modules
MEM	Data Recall
PC	PC Connection

ENTER TO SELECT
MENU

Simple and intuitive user interface

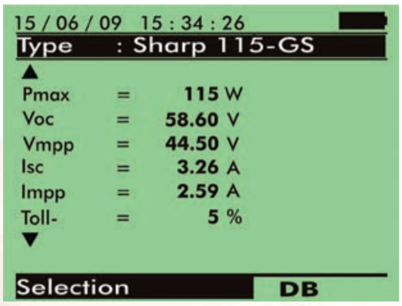


15 / 06 / 09 15 : 34 : 26

Voc	48.0	V
Vmpp	39.7	V
Impp	5.24	A
Isc	5.60	A
Pmax	208	W
FF	0.77	%
Dpmax	0.7	%

Results @ STC - OK
Selection I-V

Numerical measurement with OK result

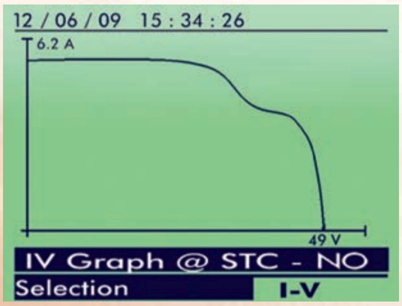


15 / 06 / 09 15 : 34 : 26
Type : Sharp 115-GS

Pmax = 115 W
Voc = 58.60 V
Vmpp = 44.50 V
Isc = 3.26 A
Impp = 2.59 A
Toll- = 5 %

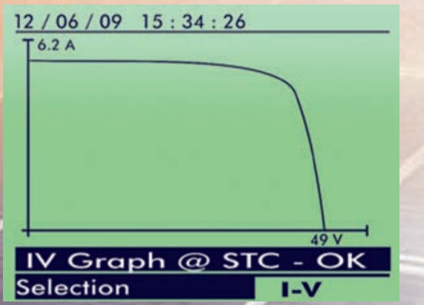
Selection DB

Addition of a PV module to the database


12 / 06 / 09 15 : 34 : 26
6.2 A
49 V

IV Graph @ STC - NO
Selection I-V

Graph of a NOT-OK curve


12 / 06 / 09 15 : 34 : 26
6.2 A
49 V

IV Graph @ STC - OK
Selection I-V

Graph of an I-V curve with OK result

SOLAR I-V

MULTIFUNCTION INSTRUMENT FOR TESTING AND VERYFYING SINGLE-PHASE PHOTOVOLTAIC INSTALLATIONS

SOLAR I-V has been designed to meet any requirement of photovoltaic installation specialists. Further to providing the possibility of measuring and recording the efficiency of single-string and single-phase photovoltaic systems, SOLAR I-V also measures the I-V characteristic both of a single module and of module strings.Thanks to SOLAR I-V, the operator can test the photovoltaic system and, should it give a negative result, immediately identify the problems of the system in order to promptly solve them. SOLAR I-V is provided with the remote unit SOLAR-02 which permits the remote measuring of irradiation and temperature with preliminary automatic synchronization between main unit and remote unit. SOLAR-02 is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters. The synchronization between the two units guarantees the necessary contemporaneity of measurements. In the case of PV efficiency recordings, this grants the right efficiency calculation. For I-V curve measurements, the synchronization permits to extrapolate the I-V curve at STC without using long extension cords cable. SOLAR I-V allows carrying out efficiency recordings over time with programmable integration period from 5 seconds to 60 minutes. Each value is automatically saved in the internal memory and can be downloaded onto the PC for subsequent analyses. The measured I-V characteristic is not affected by the resistance of the measurement cables, as the measurement is carried out with the 4-terminal measuring method. SOLAR I-V also manages a database of photovoltaic modules, which can be updated at any time. The measured values, correctly reported at standard test conditions, are immediately compared with the values declared by the manufacturer to give the OK / NO result of the test. The operator must not do any calculation, the instrument carries out the comparison rapidly and automatically. The instrument can be interfaced with accessory MPP 300, which extends the characteristics of SOLAR I-V by enabling recordings on single-phase and three-phase, single-string and multi-string (up to three strings), single-inverter and multi-inverter photovoltaic systems (therefore also in three-phase systems provided with three single-phase inverters).

FUNCTIONS

Photovoltaic efficiency recording

- Measurement of DC/AC TRMS voltage and current
- Measurement of DC/AC powers on single-phase systems
- Measurement of solar irradiation [W/m^2] with reference cell
- Measurement of environmental and module temperature by means of external probe
- Synchronization with remote unit SOLAR-02
- Display of real-time irradiation and temperature
- Use of PDC compensation ratios according to environmental and module temperature
- Three-phase up to three strings PV systems (with MPP300)
- Recording of parameters with programmable IP (5s – 60min)

I-V curve measurement

- Measurement of output voltage from module/string up to 1000V DC
- Measurement of output current from module/string up to 10A DC
- Measurement of solar irradiation [W/m^2] with reference cell
- Measurement of module temperature, automatic or by means of external probe
- Measurement of output DC and nominal power from module/string
- Synchronization with remote unit SOLAR-02
- Numerical and graphical display of I-V characteristic
- Quick test mode
- Measurement of the resistance of photovoltaic module series
- Mechanical inclinometer for the detection of the incidence angle of solar irradiation
- 4-terminal measuring method
- Extrapolation to standard test conditions (STC)
- Evaluation of testing result: OK / NO
- Management of up to 30 types of photovoltaic modules in the internal database

Common characteristics

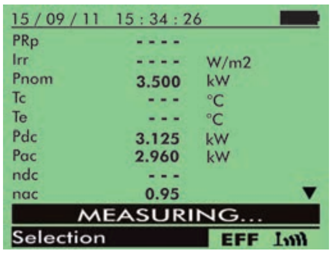
- Internal memory for data saving
- Recalling results on the display
- Optical/USB port for PC connection
- Help on line on the display

GENERAL CHARACTERISTICS

Display:	LCD custom, 128x128pxl, backlit
Power supply:	6x1.5V alkaline bat. type AA LR06
Auto power off:	after 5 minutes in stand-by
PV testing duration:	1.5 hours (@IP=5s); 8 days (@IP=10min)
Curves which can be saved:	> 200 curves
PC interface:	optoisolated optical/USB port
Safety:	IEC/EN61010-1
Measuring accessory safety:	IEC/EN61010-031, IEC/EN61010-032
Measures on PV modules:	IEC/EN60891, IEC/EN62446
Insulation	double insulation
Pollution degree:	2
Measurement category:	CAT II 1000V DC, CAT III 300V (to earth) Max 1000V between inputs
Dimensions:	235x165x75mm
Weight (batteries included):	1.3kg

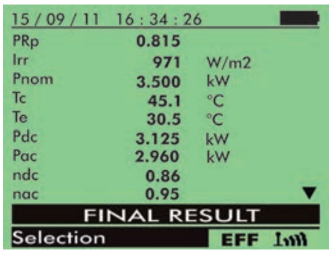
ACCESSORIES	Code
Standard	
Remote unit to record irradiation and temperature	SOLAR-02
Kit of 4 cables with 4mm banana plugs + 4 alligator clips	KITGSC4
Kit of 2 adapters with MC3 compatible connectors	KITPVMC3
Kit of 2 adapters with MC4 compatible connectors	KITPVMC4
Transducer for AC 0÷200A, diameter 40mm	HT4005K
Transducer for AC/DC currents 0÷10 - 0÷100A, diameter 32mm	HT4004N
Reference cell for irradiation measurement	HT304N
Probe PT1000 for environmental and module temperature	PT300N
Mechanical inclinometer	M304
Windows software + optical/USB cable C2006	TOPVIEW2006
Rigid transport suitcase	VA500
User manual on CD-ROM	
Calibration certificate ISO9000	
Rapid user guide	
Optional	
Multi-string three-phase adaptor	MPP300
Transducer for 0÷5A, 0÷100A AC currents Ø 20mm	HT4005N
Transducer for 0÷200A, AC currents Ø 40mm	HT4005K
Transducer for 0÷1A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT96U
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U
Transducer for 0÷200A, 0÷2000A AC currents Ø 70mm	HP30C2
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3
Transducer for 0÷1000A DC currents Ø 50mm	HT98U
Transducer for 0÷1000A DC currents Ø 83mm	HP30D1
Kit of belts for slinging the instrument over one's shoulder	SP-0400
KIt of 2 cables banana 4mm, green/black, 25m	KITPVEXT25M
Rigid transport suitcase	VA400
Magnetic adapter for connection to screw heads	606-IECN

Multistring with MPP300



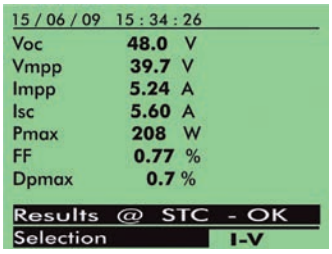
```
15 / 09 / 11  15 : 34 : 26
PRp              - - - -
Irr              - - - -   W/m2
Pnom              3.500    kW
Tc                 - - -   °C
Te                 - - -   °C
Pdc               3.125    kW
Pac               2.960    kW
ndc                - - -
nac                0.95
       MEASURING...
Selection              EFF
```

Testing / Recording in progress



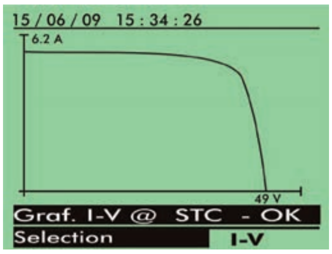
```
15 / 09 / 11  16 : 34 : 26
PRp               0.815
Irr                 971    W/m2
Pnom              3.500    kW
Tc                 45.1    °C
Te                 30.5    °C
Pdc               3.125    kW
Pac               2.960    kW
ndc                0.86
nac                0.95
       FINAL RESULT
Selection              EFF
```

Testing result of photovoltaic system



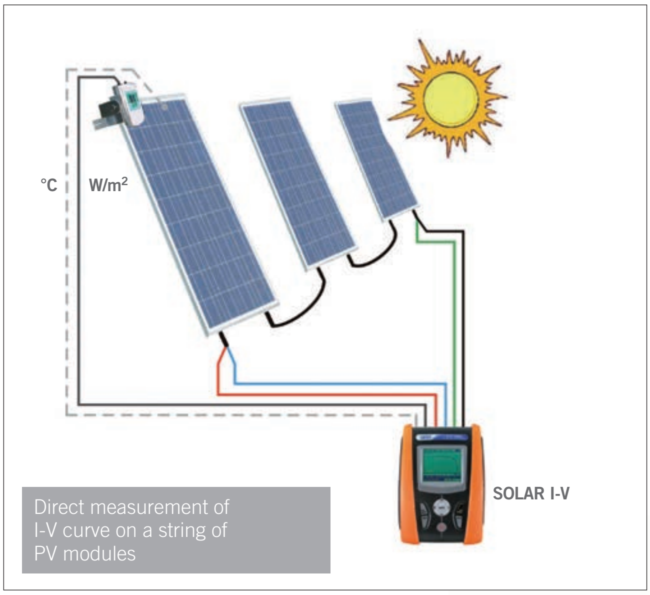
```
15 / 06 / 09  15 : 34 : 26
Voc          48.0   V
Vmpp         39.7   V
Impp         5.24   A
Isc          5.60   A
Pmax          208   W
FF           0.77   %
Dpmax         0.7   %
Results  @  STC  - OK
Selection             I-V
```

Numerical display of results with OK result

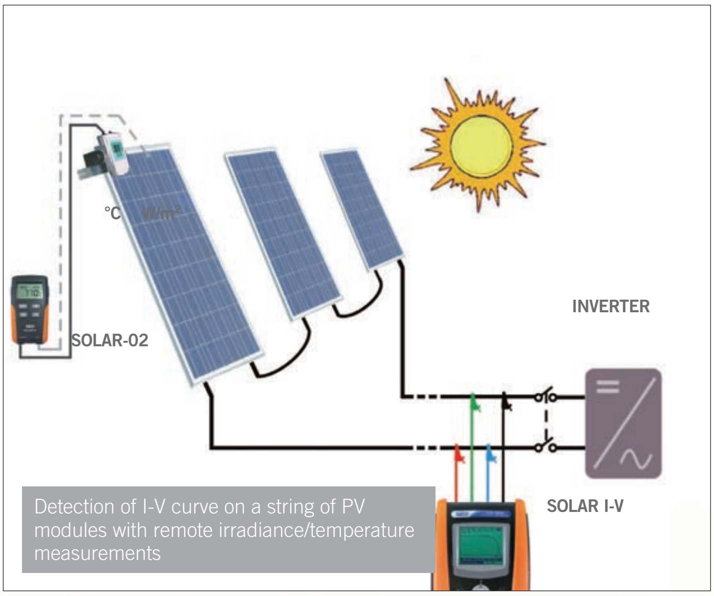


```
15 / 06 / 09  15 : 34 : 26
6.2 A
                         49 V
Graf. I-V @  STC  - OK
Selection             I-V
```

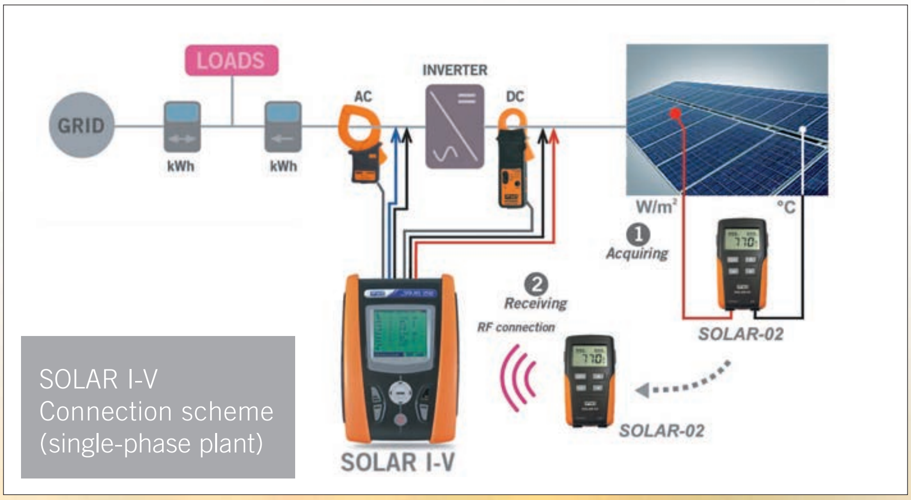
Graphical display of an I-V curve with OK result


°C
W/m²
SOLAR I-V

Direct measurement of I-V curve on a string of PV modules


°C
W/m²
SOLAR-02
INVERTER
SOLAR I-V

Detection of I-V curve on a string of PV modules with remote irradiance/temperature measurements


LOADS
GRID
kWh
kWh
INVERTER
AC
DC
W/m²
°C
1 Acquiring
SOLAR-02
2 Receiving
RF connection
SOLAR-02
SOLAR I-V

SOLAR I-V
Connection scheme
(single-phase plant)

SOLAR I-V
HV0000IV

HT
SOLAR I-V
FULL PV SYSTEMS ANALYZER
15/06/09 15:34:26
6.2A
49 V
IV Graph @ STC - OK
Selection I-V
ESC MENU
HELP
ENTER
GO STOP
SAVE

Some standard accessories

HT4004N

HT4005K

SOLAR-02

HT304N

M304

Some optional accessories

606-IECN

HP30D1

MPP300

ACCESSORY FOR MEASURING AND RECORDING THE EFFICIENCY OF SINGLE-PHASE AND THREE-PHASE MULTI-STRING SYSTEMS

The innovative accessory MPP 300, used together with SOLAR 300N or SOLAR I-V, allows measuring and recording the main parameters which characterize single-phase and three-phase, single-string and multi-string (up to three strings) photovoltaic systems. MPP 300 is perfect for use in systems with three-MPPT three-phase inverter and in three-phase systems provided with three single-phase inverters. MPP 300 is provided with a practical anti-shock “field” case, lightweight and small in size. The front panel carries the LEDs for operating information and the DC and AC inputs for upstream and downstream connection of the inverter(s). MPP 300 interfaces with SOLAR 300N via USB connection and SOLAR I-V via wireless connection. SOLAR 300N and SOLAR I-V are used for MPP 300 settings, to start/stop recording electrical and environmental parameters and to enable the download of the recorded values. The distance between the photovoltaic modules and the inverter is often considerable, and this forces the operator to carry out measurements in different places at the same time. Therefore, it would be necessary to lay long connection cables between the environmental probes and the instrument. These cables could hamper the operator’s movements, be a hindrance, etc. This kind of connection is therefore not acceptable. In case of photovoltaic installations on buildings, the so-called photovoltaic roofs, in addition to the problem of the distance between modules and inverter, the presence of floors, of reinforced concrete or metal structures, etc. must be taken into consideration. These structures would make a possible (wireless) radio connection between the environmental probes and the instrument impossible, because of signal attenuation. In order to avoid the above-mentioned problems and to carry out measurements with the necessary contemporaneity, MPP 300 is synchronized with the remote unit SOLAR-02 (provided as standard accessory of master instrument SOLAR 300N or SOLAR I-V). The remote unit SOLAR-02 is positioned next to the photovoltaic modules and it is connected to the probes for measuring environmental parameters (irradiation and temperature). MPP 300 is connected upstream and downstream of the inverter in order to acquire the electric parameters (continuous power and alternating power). The synchronization between the two units guarantees the necessary contemporaneity of measurements, the two separate and independent units make measurements comfortable and safe. The master instrument SOLAR 300N or SOLAR I-V is only used in the initial and final phase of recording, and it does not play any active role while recording electrical and environmental parameters. Therefore, while MPP300 and SOLAR-02 respectively record the electrical and environmental parameters of the system being measured, it is possible to use the master instrument SOLAR300N or SOLAR I-V for carrying out other measurements. For example, with SOLAR I-V it is possible to measure the I-V characteristics of strings and modules.

FUNCTIONS

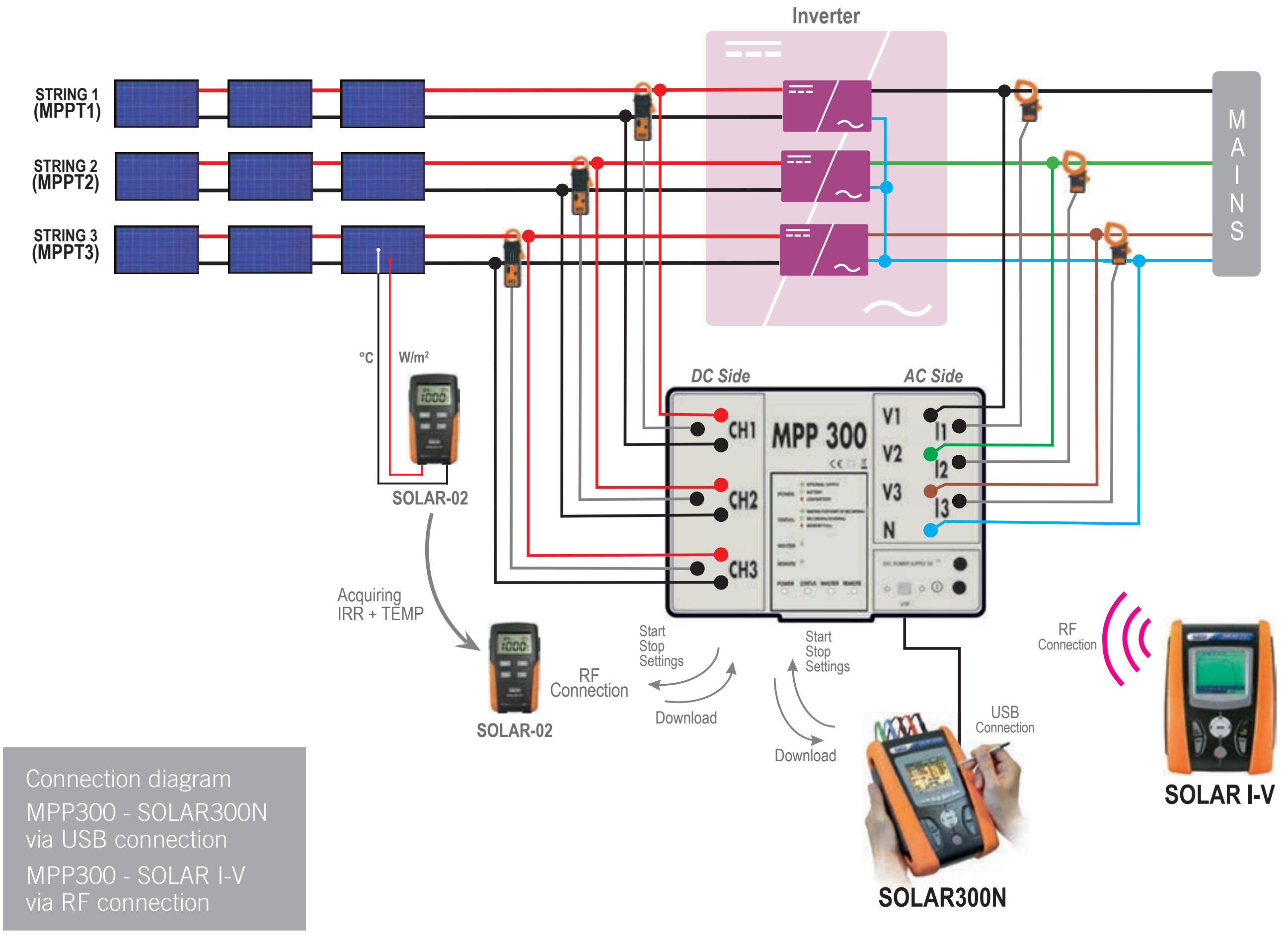
- DC/AC TRMS voltage meas. (single-phase and three-phase)
- DC/AC TRMS current meas. (single-phase and three-phase)
- DC/AC power measurement (single-phase and three-phase)
- Power factor measurement (single-phase and three-phase)
- Simultaneous measurements up to 3 strings (max 3 MPPT)
- Connection with master unit SOLAR 300N and SOLAR I-V
- Power supply with rechargeable Li-ION battery
- LED operating indications
- USB port for connection to unit SOLAR 300N
- RF connection for connection to SOLAR-02 and SOLAR I-V
- Internal memory for saving recordings

GENERAL CHARACTERISTICS

Inputs:	3 DC voltage channels (CH1, CH2, CH3), 3 DC current inputs (CH1, CH2, CH3), 4 AC voltage inputs (L1, L2, L3, N), 3 AC current inputs (L1, L2, L3)
Front panel:	4 two-colour LEDs (green, red)
Power supply:	Rechargeable Li-Ion battery. Duration > 3 hours
Internal memory:	2 MBytes
External interface:	USB + RF
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Mechanical protection:	IP40 (open), IP65 (closed)
Measurement category:	CAT IV 300 V AC (to earth), 600 V AC (between inputs) CAT III 1000 V DC (to earth), 1000 V DC (between inputs)
Dimensions:	300 x 265 x 140 mm
Weight (batteries included):	2.3 kg

ACCESSORIES	Code
Standard	
Set of 2 cables, 2m, for DC voltage measurement, 3pcs	KITMPPDCW
Set of 2 alligator clips for DC voltage measurement, 3pcs	KITMPPDCC
Set of 4 cables, 2m, for AC voltage measurement	KITMPPACW
Set of 4 alligator clips for AC voltage measurement	KITMPPACC
Rechargeable Li-Ion battery	YABAT0003HT0
AC/DC battery charger power supply	A0055
USB cable	C2007
Carrying bag for accessories	BORSA2051
User manual	
ISO9000 calibration certificate	
Optional	
Transducer for 0÷5A, 0÷100A AC currents Ø 20mm	HT4005N
Transducer for 0÷200A, AC currents Ø 40mm	HT4005K
Transducer for 0÷1A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT96U
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U
Transducer for 0÷200A, 0÷2000A AC currents Ø 70mm	HP30C2
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3
Unbatteried transducer for DC currents 0÷10A, 0÷100A max diameter 32mm	HT4004P
Transducer for 0÷1000A DC currents Ø 50mm	HT98U
Transducer for 0÷1000A DC currents Ø 83mm	HP30D1
Flexible clamp AC 3000A, diameter 174mm	HTFLEX33D
Flexible clamp AC 3000A, diameter 274mm	HTFLEX35
Interface 3x1 5A/1V for connection of external CTs	HT903
3-pin plug DC clamp adapter	ACON3F4M
Magnetic adapter for connection to screw heads	606-IECN
AC/DC 115V/50-60Hz mains adapter - US plug	A0056

Multi-string PV plant tested by means of MPP300


Inverter
STRING 1
(MPPT1)
STRING 2
(MPPT2)
STRING 3
(MPPT3)
MAINS
°C
W/m²
SOLAR-02
DC Side
AC Side
CH1
CH2
CH3
MPP 300
V1
V2
V3
N
I1
I2
I3
Acquiring
IRR + TEMP
SOLAR-02
RF
Connection
Start
Stop
Settings
Download
Start
Stop
Settings
Download
USB
Connection
RF
Connection
SOLAR I-V
SOLAR300N

Connection diagram
MPP300 - SOLAR300N
via USB connection
MPP300 - SOLAR I-V
via RF connection

THREE-STRING
THREE-PHASE
PV YIELD
RECORDER

MPP300
HVMPP300

Useful carrying case for transport

Some optional accessories

HP30D1

606-IECN

MULTIFUNCTION
SAFETY TESTER

	ELECTRIC TESTS MAINS ANALYSES ENVIRONMENTAL PARAMETERS					ELECTRIC TESTS			
Model	**GSC53N**	**GSC57**	**SIRIUS 89N**	**ZG47**	**COMBI 420**	**MACROTEST G3**	**SIRIUS 87**	**MACROTEST 5035**	**COMBI 419**
Insulation with 1000VDC test voltage	•	•	•	•	•	•	•	•	•
Insulation with 500VDC test voltage	•	•	•	•	•	•	•	•	•
Insulation with 250VDC test voltage	•	•	•	•	•	•	•	•	•
Insulation with 50, 100VDC test voltage	•	•	•	•	•	•	•	•	•
Insulation with 100V to 5000VDC test voltage									
Insulation with measurement range up to 10TΩ									
Insulation with 500V to 10kV test voltage									
Continuity of earth conductors with 200mA	•	•	•	•	•	•	•	•	•
Continuity of earth conductors with I>10A, V<12V		•							
Continuity of earth conductors with 10A< I <25A, V<6V									
Continuity of earth conductors according to IEC/EN60204-1:2006		•							
Earth resistance with 2-wire and 3-wire methods	•	•	•	•		•	•	•	
Earth resistance with ring mode						•(**)			
Ground resistivity with 4-wire method	•	•	•	•		•	•	•	
Global earth resistance without RDC's tripping	•	•	•	•	•	•	•	•	•
Line/fault impedance Phase-Phase, Phase-Neutral, Phase-PE	•	•	•	•	•	•	•	•	•
Line/fault impedance Phase-Phase, Phase-Neutral, Phase-PE with high resolution (0.1mΩ)	•(*)	•(*)	•(*)	•(*)	•(*)	•(*)	•(*)	•(*)	•(*)
Prospective short circuit/fault current	•	•	•	•	•	•	•	•	•
Contact voltage	•	•	•	•	•	•	•	•	•
RCD type A, AC Standard and Selective trip out time	•	•	•	•	•	•	•	•	•
RCD type AC Standard trip out time	•	•	•	•	•	•	•	•	•
RCD type B Standard and Selective trip out time						•			
RCD trip out current	•	•	•	•	•	•	•	•	•
Phase sequence indication	•	•	•	•	•	•	•	•	•
Automatic test (Global earth resistance, RCD trip out time, Insulation) directly on test outlet of plant					•				•
Test with remote probe *(with PR400 optional accessory)*					•				•
Wire mapping test on LAN UTP/STP, RJ45 network cables									
Withstanding test with test voltage from 250V to 5100V									
Withstanding test in BURN mode									
Discharging time on DUT's plug and internal circuits									
Leakage current on machine's socket									
DC/AC TRMS voltage, AC TRMS current*(*)*, Frequency*(*)*, Resistance and Continuity test *(*not for M70)*									
DC current *(with batteried transducer)*									
Leakage current in earth systems									
Leakage current *(with HT96U optional accessory)*	•	•	•	•	•	•			•
Measurement of electrical parameters (V, A ,W,VAR,VA, PF)	•(3)	•(3)	•(1)	•(3)	•(1)				
Recording of electrical parameters (V,A,W,VAR,VA, PF, Wh)	•(3)	•(3)	•(1)	•(3)					
V, A harmonic analysis up to 49th order and THD% calculation	•(3)	•(3)	•(1)	•(3)	•(1)				
Voltage anomalies (sags, swells) with 10ms resolution	•(3)	•(3)	•(1)	•(3)					
Measurement of environmental parameters (°C, F, %RH, Lux) *(with HT52/05, HT53/05 optional probes)*	•(3)	•(3)	•(1)	•(3)	•(1)	•			
Recording of environmental parameters (°C, F, %RH, Lux) *(with HT52/05, HT53/05 optional probes)*	•	•	•	•					
Help on line					•	•		•	•
Internal memory to save the measures	•	•	•	•	•	•	•	•	•
RS-232 / USB port for PC connection	•	•	•	•	•	•	•	•	•
Page	28-29	28-29	30	28-29	33	31	32	32	33

(1) Single phase installations / Single input; (3) Three phase installations / Three inputs; (*) with IMP57 optional accessory; (**) with T2100 optional accessory

ELECTRIC TESTS TRMS MULTIMETERS WIRE MAPPERS				INSULATION CONTINUITY					EARTH RESISTANCE			RCD	MACHINES SWITCH BOARDS
M75	**M74**	**M73**	**M72**	**M70**	**ISO 410**	**HT7051**	**HT7052**	**EQUITEST 5071**	**GEO 416**	**M71**	**T2000**	**SPEED 418**	**FULLTEST3**
				•	•	•	•						•
•	•		•	•	•	•	•						•
•	•		•	•	•	•							•
					•								•(100V)
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34	34	35	36	38	36	40	39	37	41	41	42	35	43

GSC57 - GSC53N - ZG47

INTEGRATED INSTRUMENTS FOR ELECTRIC TESTS, MAINS ANALYSES ON SINGLE-PHASE AND THREE-PHASE SYSTEMS AND ENVIRONMENTAL PARAMETER MEASUREMENTS

GSC53N, GSC57 and ZG47 are strong evolution equipment designed to perform complete test, to verify electrical installations according to the most common safety standards (IEC 61557, VDE 0100, BS7671, etc.) and to carry out power quality analysis on general electric networks. Flexibility of these meters permits their use by installers, technicians, engineers and testers of electrical plants and equipment. GSC53N, GSC57 and ZG47 measure, among the other things, a fault Loop Impedance with high resolution (0.1 mOhm) near power transformers thanks to the use of IMP57 as optional accessory. As power quality analysers, the instrument can record all values of electrical parameters (Voltage, Current, Power, Power Factor, Energy, etc.), perform harmonic analysis of voltage and current (up to 49-th order) and permit voltage quality analysis. With optional probes, GSC53N, GSC57 and ZG47 can also perform measures and recordings of environmental parameters as temperature, humidity, illumination (Lux) and leakage current which are very important for troubleshooting problem of RCDs wrong tripping. Each measure can be stored inside instrument memory, recalled on instrument display and transferred to PC using the management software to create a professional relation which will improve the work quality.

GENERAL CHARACTERISTICS

- Double insulation
- Weight and size:
  GSC57: 1700g - 225x165x105 mm
  GSC53N: 1200g - 225x165x105 mm
  ZG47: 1200g - 225x165x105 mm
- RS232/USB optical output
- Compliance with electromagnetic compatibility standards for measuring instruments
- Power supply through batteries and external supply
- Graphic display to optimize the information displayed in one screen only, with backlighting for carrying out measurements also in poorly lit environments
- Simple use
- Multilanguage messages directly shown on the instrument's display

TECHNICAL SPECIFICATIONS

- Verifications on Civil and Industrial Electric Systems in compliance with Standards IEC/EN 61557, VDE 0100, BS 7661 17th issue

CONTINUITY TEST ON PROTECTIVE CONDUCTORS
- test voltage with open circuit DC 4 <Uo <24 V
- test current >0.2A (R<5Ω)
- measuring range 0.01-99.9
- basic precision ± 2% reading
- compensation of test cable resistance

INSULATION RESISTANCE MEASUREMENT
- test voltage 50, 100, 250, 500, 1000VDC
- measuring ranges:
- 0.01 ÷ 99.99 MΩ for test voltage 50VDC
- 0.01 ÷ 199.9 MΩ for test voltage 100VDC
- 0.01 ÷ 499 MΩ for test voltage 250VDC
- 0.01 ÷ 999 MΩ for test voltage 500VDC
- 0.01 ÷ 1999 MΩ for test voltage 1000VDC
- basic precision ± 2% reading

VERIFICATION OF TRIPPING TIME AND CURRENT OF DIFFERENTIAL PROTECTIVE DEVICES (A, AC, GENERAL AND SELECTIVE TYPE)
- tripping current 10-30-100-300-500mA
- tripping current ramp from:
- 0.5 ÷ 1.4 Idn for AC type
- 0.5 ÷ 2.0 Idn for A type
- tripping time measure: 1/2IDN-IDN-2IDN-5IDN and automatic
- basic precision ± 10% reading

MEASUREMENT OF LINE IMPEDANCE AND OF FAULT LOOP WITH CALCULATION OF THE ASSUMED SHORT-CIRCUIT CURRENT AND VERIFICATION OF THE COORDINATION OF PROTECTIONS IN TT AND TN SYSTEMS
- measuring range for phase-phase, phase-neutral line impedance 0,01÷199,9Ω
- measuring range for phase-earth fault loop impedance 0,01÷1999Ω
- possibility of measuring the phase-earth fault loop without the differential switch's tripping
- indication of the measured values of Zs, Isc
- basic precision ± 5% reading
- resolution 0.1mΩ *(with optional IMP57)*

MEASURING EARTH RESISTANCE AND GROUND RESISTIVITY
- meas. earth resistance by means of the auxiliary pins 0.01 ÷ 1999Ω
- measuring ground resistivity by means of the 4 pins (Wenner method) 0.01 ÷ 199.9kΩm
- measuring earth resistance from the socket of a TT system by voltage drop
- basic precision ± 2% reading

Phase sequence
- voltage 100 ÷ 400V

Direct measurement of leakage current to earth
- by means of amperometric clamps in a range of 0 ÷ 1A; resolution=1mA
- precision ± 2% reading

Verifications on Electric Systems in medical rooms *(for GSC57 only)*
CONTINUITY TEST ON PROTECTIVE CONDUCTORS>
- test voltage with open circuit Uo <12V
- test current = 10A
- measuring range 0.001 ÷ 0,999Ω
- basic precision ± 2% reading
- measuring duration = 500 tests
- 4-wire measurement

Verification of the Electrical Service Quality in compliance with standard EN50160
- The instruments, suitable for carrying out measurements on single-phase and three-phase systems with or without neutral, both for balanced and unbalanced loads, show the following nominal values:
- measurable voltage up to 600 V
- current by amperometric clamps, output 1V
- frequency 50 ÷ 60 Hz
- precision (instrument) ± 0,5% reading
- precision (transients) ± 1% reading

THE INSTRUMENTS ALLOW MEASURING AND RECORDING:
- TRMS value of voltage
- TRMS value of current by means of amperometric clamps
- voltage frequency
- harmonic analysis (of voltages and currents) up to the 49th order
- voltage variations out of the set thresholds (dips and peaks) with a minimum resolution of 10ms
- active power
- reactive power
- apparent power
- active energy
- reactive energy
- power factor
- saving and storage of measures
- 40 days duration with 63 quantities and IP=15m
- Memory: 2 Mbyte

ENVIRONMENTAL PARAMETER ANALYSIS
- measuring and recording temperature by means of an adapter
- measuring and recording humidity by means of an adapter
- measuring and recording illuminance by means of an adapter

MEASUREMENT SELECTION:
- by means of a switch and selection keys.

MANAGEMENT SOFTWARE

The instrument's management software is compatible with common Micro-soft Windows operating systems. The minimum hardware includes:
- Pentium III - 500 MHz
- 512 Mbyte of RAM memory
- 100 Mbyte of mass memory (hard disk)
- Operative system Windows 7, WindowsXP, VISTA
- Windows-compatible mouse, RS-232 or USB port, CD-ROM drive.

ACCESSORIES	Code	GSC53N	GSC57	ZG47
Standard				
3-terminal cable with SHUKO plug	C2033X	•	•	•
Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5	•	•	•
Set of 4 cables + 4 metal earth probes	KITTERRNE	•	•	•
Power supply cord for 10A continuity test	C5700		•	
Flexible clamp 3000A AC, diameter 174mm, 3 pcs	HTFLEX33D	•		•
Power supply adapter 230VAC/12VDC 50Hz	A0050	•	•	•
PC Windows software + optical /USB cables	TOPVIEW2006	•	•	•
Carrying bag	BORSA2051	•	•	•
ISO9000 calibration certificate		•	•	•
User manual		•	•	•
Optional				
Flexible clamp 3000A AC, diameter 274 mm	HTFLEX35	•		•
Set of 3 flexible clamps 300-3000A /1V AC, diameter 174mm	HTFLEX3003	•	•	•
Transducer for 0÷5A, 0÷100A AC currents Ø 20mm	HT4005N	•	•	•
Transducer for 0÷200A, AC currents Ø 40mm	HT4005K	•	•	•
Transducer for 0÷1A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT96U	•	•	•
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U	•	•	•
Transducer for 0÷200A, 0÷2000A AC currents Ø 70mm	HP30C2	•	•	•
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3	•	•	•
Set of cables for 10A continuity test, 5m length	C7000/05		•	
Set of cables for 10A continuity test, 10m length	C7000/10		•	
Case 3x1-5A/1V for connection to external CTs	HT903	•	•	•
Temperature/Humidity probe	HT52/05	•	•	•
Illuminance (Lux) probe	HT53/05	•	•	•
Accessory for Loop impedance with high resolution	IMP57	•	•	•
Power supply adapter 110VAC/12VDC 60Hz	A0053	•	•	•
Set of straps for carrying belt	CN0050	•	•	•
Magnetic adapter for connection to screw heads	606-IECN	•	•	•
Safety flexible alligator clip	6007-IEC#	•	•	•

Optional

IMP57- Accessory for measuring Loop Impedance with high resolution

GSC57
HV000057-0201
GSC53N
HV000059-0201
ZG47
HV000047-0201

Standards and directives
The instruments are designed to carry out measurements, verifications and analysis according to:
IEC/EN61557-1
VDE 0100
VDE 0413
IEC/EN61010-1
BS7661 17th issue

SIRIUS89N
MULTIFUNCTION INSTRUMENT FOR TESTS ON ELECTRIC SYSTEMS AND MAINS ANALYSES IN SINGLE-PHASE SYSTEMS

SIRIUS89N is a multifunction instrument which allows carrying out all necessary tests on civil and industrial electric systems in compliance with IEC 60364 and a complete analysis of the mains quality on single-phase systems (harmonics, voltage anomalies, power checks). SIRIUS89N is also used to analyze environmental measurements (measurements of temperature, humidity, lighting and noise). The instrument also carries out loop/line impedance measurements and calculates the assumed short-circuit current with high-resolution 0.1mΩ) with the aid of the optional accessory IMP57. In this way, it is possible to obtain precise measurement results, also near MT/BT transformation cabs, where the inductive effect due to the presence of the transformer is significant, and therefore also allows correctly choosing the appropriate protections in industrial systems. On the instrument, it is possible to select preset recordings to carry out measurements in the most common situations in a very simple way. Thanks to the PC interface and to the supplied software it is possible to download the data of each measurement carried out, for a practical final print.

FUNCTIONS

Electric system test in compliance with standard IEC/EN61557-1
- Continuity of protective conductors with 200mA
- Insulation with test voltage 50, 100, 250, 500, 1000VDC
- Tripping time and current on RCDs type A, AC, General and Selective up to 500mA
- Total earth resistance without RCD tripping
- Line/loop P-N, P-P, P-PE impedance, also with high resolution (0.1mΩ) with optional accessory IMP57
- Earth resistance by voltamperometric method with probes
- 4-wire method ground resistivity measurement
- Phase sequence
- Leakage current *(with optional clamps HT96U)*
- **Recording and analysis**
- Electric parameter measurement (voltage, current, power, energy, PF, frequency) on single-phase or three-phase balanced systems
- ***Possible implementation for generic three-phase systems***
- Recording of electric parameters with selectable integration period from 5s to 60min
- Harmonic analysis of voltages and currents up to the 49th component with calculation of THD%
- Analysis of voltage anomalies (dips, peaks) with 10ms resolution
- Numeric display, waveforms and histograms of harmonic analysis
- 5 selectable recordings with preset parameters
- 4-quadrant measurements
- **Recording and analyses of environmental parameters**
- Air temperature measurement (°C / °F)
- Relative humidity measurement (%UR)
- Lighting measurement (Lux)
- **General characteristics**
- Internal memory with 2Mbytes capacity
- Optical interface for connection to the PC
- Graphic LCD display with backlight
- Power supply: 6x1.5V batteries type AA LR6
- Safety: IEC/EN61010-1
- Measurement category: CAT III 600V
- Dimensions (LxWxH): 225x165x105mm
- Weight (batteries included): 1.2kg

ACCESSORIES	Code
Standard	
3-terminal cable with SHUKO plug	C2033X
Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5
Set of 4 cables + 4 metal earth probes	KITTERRNE
Flexible transducer for 0÷1000A, 0÷3000A AC currents Ø 174mm	HTFLEX33D
Power supply adapter 230VAC 50Hz /12VDC	A0050
PC Windows software + optical / USB cable	TOPVIEW2006
Carrying bag	BORSA2051
ISO9000 calibration certificate	
User manual	
Optional	
Transducer for 0÷5A, 0÷100A AC currents Ø 20mm	HT4005N
Transducer for 0÷200A AC currents Ø 40mm)	HT4005K
Transducer for 0÷1A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT96U
Transducer for 0÷10A, 0÷100A, 0÷1000A AC currents Ø 54mm	HT97U
Transducer for 0÷200A, 0÷2000A AC currents Ø 70mm	HP30C2
Transducer for 0÷3000A AC currents Ø 70mm	HP30C3
Flexible clamp AC 3000A, diameter 274mm	HTFLEX35
Temperature/Humidity probe	HT52/05
Illuminance (Lux) probe	HT53/05
Magnetic adapter for connection to screw heads	606-IECN
Accessory for Loop Impedance with high resolution	IMP57
AC/DC 115V/50-60Hz mains adapter - US plug	A0053
Free hands kit	CN0050

Optional accessories

IMP57- Accessory for measuring Loop Impedance with high resolution

HT
SIRIUS 89N
TopView
V2.0.0.1-00
F1
F2
F3
F4
RCD
LOOP
EARTH
AUX
ANALYZER
START STOP
SAVE
HOLD ENTER
MENU
ESC
HT

SIRIUS89N
HV00089N-0201

MACROTESTG3
PROFESSIONAL MULTI-FUNCTION ELECTRICAL SAFETY TESTER

MACROTESTG3 is an innovative instrument capable of carrying out safety tests on civil and industrial electric systems in compliance with IEC/EN61557-1. Its capacitive TFT color touch-screen display, its icon menu, its help-on-line and its user-friendly development make the instrument extremely intuitive even for unskilled users. Its numberless features grant the user a wide range of applications in the world of measurements. MACROTESTG3 allows saving all measures into an internal memory so transferring the saved data to a PC, a PDA or a smartphone by means of USB (provided as standard) or Wi-Fi (C2013 optional accessory) interfaces. The software supplied among standard accessories allows printing testing reports. MACROTESTG3 also drives the optional accessory IMP57 to carry out high resolution (0.1m) loop/line impedance measurements with prospective short-circuit current calculation. This allows accurate measurements even close to power stations enabling the user to correctly size the protection devices in any system. Further possible tests consist in checking breakdown current, tripping current, I2t relative to breakers (MCB) with curves B, C, D, K and fuses type gG as well as aM. Through optional clamp model HT96U it is possible to measure the leakage current. Optional clamp T2100 permits to quickly check the resistance of earth probes without disconnection from earth system.

FUNCTIONS

- Continuity of protection conductors with 200mA
- Insulation resistance with 50, 100,250,500,1000V DC
- Type A, AC, and B general, selective, and delayed RCDs up to 1000mA
- Line/fault impedance with prospective short circuit current calculation
- High resolution line/fault impedance (with IMP57 optional accessory)
- Curve B, C, D, and K MCBs and type gG and aM fuses
- Selection of length, type, and insulation of the cable under test
- Selection of tripping time of the protection device under test
- Earth resistance and soil resistivity with auxiliary rods
- Earth ground resistance (with T2100 optional accessory)
- Non-trip earth loop impedance
- Phase sequence indication
- Leakage current by means of the external transducer HT96U (optional)
- Environmental parameters (C/F, HR%, Lux) by means of optional probes
- TFT display with touch-screen
- Help on-line
- Internal memory
- USB interface to connect to the PC
- Wi-Fi (optional) interface to connect to PDAs, smart phones, etc.
- Rechargeable NiMH batteries (external battery charger)

GENERAL SPECIFICATIONS

Power supply:	6x1.2V type AA rechargeable batteries 6x1.5V type AA alkaline batteries
Display:	TFT, color, 320x240mm, with touch-screen
Internal memory:	999 locations, 3 marker levels
PC interface:	Optical/USB
Safety:	IEC/EN61010-1, IEC/EN61557-1
Insulation:	double insulation
Measurement category:	CAT III 240VAC (to ground) Max 415V between inputs
Dimensions (LxWxH):	225x165x105mm
Weight (battery included):	Approx. 1.2kg

ACCESSORIES	Code
Standard	
3-terminal cable with SHUKO plug	C2033X
Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5
Set of 4 cables + 4 metal earth probes	KITTERRNE
Carrying bag	BORSA2051
Stylus	PT400
Windows software + optical/USB cable	TOPVIEW2006
Switch probe	PR400
1.2V NiMH rechargeable batteries type AA, 6pcs	YABAT0001000
External battery charger	
ISO9000 calibration certificate	
Quick reference guide	
User manual on CD-ROM	
Optional	
Accessory for Loop impedance with high resolution	IMP57
Magnetic adapter for connection to screw heads	606-IECN
Transducer for 0÷1A, 0÷100A, 0÷1000A AC, diameter 54mm	HT96U
Clamp for probe earth resistance measurement	T2100
Temperature/Humidity probe	HT52/05
Illumination (Lux) probe	HT53/05
Hands-free kit	SP-0400
Optical/WiFi interface	C2013

NEW
With
HTANALYSIS APP
(see pag. 4)
HT
MACROTEST G3
MENU
ENTER
GO STOP
ESC
SAVE
HELP
MACROTESTG3
HV005036

T2100 - Earth ground clamp meter

C2013 - Optical/WiFi interface

SIRIUS87 - MACROTEST5035

MULTIFUNCTION INSTRUMENTS FOR COMPLETE TESTS ON CIVIL AND INDUSTRIAL ELECTRIC SYSTEMS

SIRIUS87 and MACROTEST5035 are capable of carrying out complete tests on civil and industrial electric systems in compliance with standard IEC/EN61557-1. Tanks to their simple and intuitive use, these instruments allow saving all measurement results in their internal memory and transferring the saved data onto the PC by means of a optical interface in order to print useful measuring reports, to be attached to Declarations of Conformity, with the aid of the dedicated software supplied. SIRIUS87 and MACROTEST5035 also carry out loop/line impedance measurements and calculate the prospective short-circuit current with high-resolution (0.1mΩ) with the aid of the optional accessory IMP57. In this way, it is possible to obtain precise measurement results, also near HV/LV transformation cabs, where the inductive effect due to the presence of the transformer is significant, and therefore also allows correctly choosing the appropriate protections in industrial systems.

FUNCTIONS

- Continuity of protective conductors with 200mA
- Insulation resistance with 50,100,250, 500,1000VDC
- Line/Loop impedance Phase-Phase, Phase-Neutral, Phase-PE also with high-resolution (0.1mΩ), with optional accessory IMP57
- Prospective short circuit current
- Contact voltage
- AC voltage and frequency
- Tripping time and current on RCDs type A, AC General and Selective with 10,30,100,300,500mA
- Global earth resistance without RCD tripping
- Earth resistance by 2-wire and 3-wire method
- Ground resistivity with 4-wire method
- Phase sequence indication
- Storage in memory up to 350 measurement results
- Optical/USB interface for communication to PC
- Power supply: 6x1.5V alkaline batteries type AA LR03
- Safety: IEC/EN61010-1, CAT III 265V (to ground), CAT III 460V (between inputs)
- Dimensions (LxWxH): 222x165x105mm
- Weight (batteries included): 1.2kg

ACCESSORIES	Code
Standard	
3-terminal cable with SHUKO plug	C2033X
Set of 4 cables + 4 alligator clips + 2 test leads	KITGSC5
Set of 4 cables + 4 metal earth probes	KITTERRNE
PC Windows software + optical / USB cable	TOPVIEW2006
Carrying bag	BORSA2051
ISO9000 calibration certificate	
User manual	
Optional	
Accessory for Loop impedance with high resolution	IMP57
Set of straps for carrying belt	CN0050
Magnetic adapter for connection to screw heads	606-IECN
Safety flexible alligator clip	6007-IEC#

Optional accessories

IMP57- Accessory for measuring Loop Impedance with high resolution

MACROTEST5035
HV005035-0201

SIRIUS87
HV000087-0201

COMBI419 - COMBI420
COMBINED MULTIFUNCTION INSTRUMENTS FOR TESTS ON CIVIL AND INDUSTRIAL ELECTRIC SYSTEMS

Models COMBI419 and COMBI420 are innovative instruments for carrying out tests on electric systems in compliance with standard IEC 60364, for measuring and saving environmental parameters (only COMBI420) of leakage current and of electric quantities such as active power, harmonics, PF on single-phase systems (only COMBI420). These instruments are extremely simple to use and have a wide range of functions which can be selected through the practical multi-language menu. Each model also allows carrying out measurements by using a a switch probe (optional accessory PR400), which makes it much easier to carry out more measurements one after the other. The help on line, which can be consulted by the user and is available for all functions, provides a very useful help in connecting the instrument to the system to be tested.

FUNCTIONS	COMBI419	COMBI420
Continuity with 200mA	●	●
Insulation with 50,100,250,500,1000VDC	●	●
Tripping time of RCD type A, AC standard and selective up to 500mA	●	●
Tripping current of RCD type A, AC up to 500 mA	●	●
Loop/line P-N, P-P, P-PE impedance also with high resolution (0.1mΩ) *(with optional accessory IMP57)*	●	●
Total earth resistance without RCD tripping	●	●
Contact voltage	●	●
Phase sequence indication	●	●
AUTO test (total earth resistance, RCD test, insulation test) on the tested sockets	●	●
Measurement of powers and PF in single-phase systems		●
Voltage and current harmonics up to the 49th with calculation of the THD%		●
Environmental parameter measurement *(temperature, humidity, Illuminance with optional probes)*		●
Leakage current measurement *(with optional clamp HT96U)*	●	●
Activation of measurements with optional remote probe PR400	●	●
Help on line on the display	●	●
Storage of results	●	●
Optical/USB interface for connection to PC	●	●
Dimensions (LxWxH) mm	222x162x57	222x162x57
Weight (batteries included)	1 Kg	1 Kg

ACCESSORIES	Code
Standard	
3-terminal cable with SHUKO plug	C2033X
Set of 3 cables + 3 alligator clips + 1 test leads	UNIVERSALKIT
Carrying bag	BORSA75N
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
PC Windows software + optical / USB cable	TOPVIEW2006
Clamp 1-100-1000A/1V AC, diameter 54mm	HT96U
Temperature/Humidity probe (only COMBI420)	HT52/05
Illuminance (Lux) probe (only COMBI420)	HT53/05
Switch probe	PR400
Accessory for Loop impedance with high resolution	IMP57
Hands-free kit	SP-0400
Magnetic adapter for connection to screw heads	606-IECN
Safety flexible alligator clip	6007-IEC#

Some optional accessories

PR400
Switch probe

HT96U
clamp for AC
leakage current

SP-0400
Hands-free kit

HT
COMBI 419
AUTO
Ra = ----Ω
Trcd = ----ms
Rp-pe = ----MΩ
ENTER
ESC MENU
HELP
GO STOP
SAVE
COMBI 420

www.youtube.com/user/HTinstruments1

COMBI420
HV000420

COMBI419
HV000419

M74 - M75
COMBINED INSTRUMENTS FOR SAFETY TESTS, MULTIMETER FUNCTIONS AND CHECKING OF LAN NETWORK WIRE MAPPING

Models M74 and M75 are innovative instruments with all the characteristics of a multimeter with true RMS value (TRMS), verification tests on civil systems and mapping check on LAN network cables (only M75) in one single unit. The ergonomic and attractive shapes, the innovative electronic function selector, the easiness and rapidity of use when carrying out tests make these instrument suitable for any kind of electric installer.

FUNCTIONS	M74	M75
Continuity with 200mA	•	•
Insulation with 250, 500VDC	•	•
Tripping time on RCDs type AC General, 30mA, 30x5mA, 100mA, 300mA	•	•
Global earth resistance without RCD tripping	•	•
AUTO function (global earth resistance, RCD test, insulation) on the tested socket	•	•
Phase sequence with 1 and 2 leads	•	•
Complete test on LAN network cable mapping with RJ45		•
DC/AC TRMS voltage	•	•
DC/AC TRMS current	•	•
Resistance and continuity test	•	•
Data HOLD, MAX/MIN/AVG	•	•
Voltage and current PEAK measurement	•	•
Leakage current measurement *(with optional clamps HT96U)*	•	•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 550V	CAT III 550V
Power supply	4x1.5V Type AA	4x1.5V Type AA
Dimensions (LxWxH) (mm)	240x100x45	240x100x45
Weight (with batteries)	450g	450g

ACCESSORIES	Code
Standard	
Set of 2 cables with test leads + 2 alligator clips	KIT0075
2-terminal cable with SHUKO plug	C2075
Clamp 400A AC, diameter 30mm *(only M75)*	HT4003
LAN remote unit #1 + patch cable *(only M75)*	REM1
LAN remote unit #2 + patch cable*(only M75)*	REM2
FTP patch cable RJ45 *(only M75)*	YAAMS0000000
Carrying bag	BORSA75
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
Clamp 1-100-1000A/1V AC, diameter 54mm	HT96U
Clamp 400A AC, diameter 30mm	HT4003
Clamp 200A/1V AC, diameter 40mm	HT4005K
Clamp 10-100A/1V DC, diameter 32mm	HT4004N
Adapter for connection of HT96U, HT4004N, HT4005K clamps	NOCANBA
LAN remote unit #3 *(only M75)*	REM3
LAN remote unit #4 *(only M75)*	REM4
LAN remote unit #5 *(only M75)*	REM5
LAN remote unit #6 *(only M75)*	REM6
LAN remote unit #7 *(only M75)*	REM7
LAN remote unit #8 *(only M75)*	REM8
6x LAN remote units #3 ÷ #8 *(only M75)*	REM38

HT
M74
MULTITEST
MODE PEAK
FUNC HOLD
FUNCTIONS

M74
HV000074

HT
M75
MULTITEST
MODE PEAK
FUNC HOLD
FUNCTIONS

M75
HV000075

M73 - SPEED418

MULTIFUNCTION INSTRUMENTS FOR TOTAL EARTH RESISTANCE MEASUREMENT AND TESTS ON DIFFERENTIAL SWITCHES

Models M73 and SPEED418 are innovative instruments for measuring the total earth resistance without causing the differential switch's tripping (typically used in TT systems as an alternative to earth measurement with probes) and for evaluating the tests on differential switches on civil and industrial electric systems. Model SPEED418, differently from M73, allows storing each measurement result in its own internal memory and downloading the saved data onto the PC with the aid of the dedicated software. SPEED418 also allows carrying out measurements by using a switch probe (optional accessory PR400), which makes it much easier to carry out more measurements one after the other. Model M73 is provided with a powerful multimeter function for measuring quantities in true RMS value (TRMS), which is useful when solving any kind of electric problem.

FUNCTIONS	M73	SPEED418
Tripping time on RCD type A, AC General and Selective with currents 10, 30,100, 300, 500mA		•
Tripping time on RCD type AC General with currents 30, 30x5, 100, 300mA	•	•
Tripping current on RCD type A, AC General and Selective		•
Global earth resistance without RCD tripping	•	•
Line/Loop impedance, also with high-resolution (0.1mΩ)*(with optional accessory IMP57)*		•
Prospective short circuit current	•	•
Phase sequence indication	•	•
DC/ACTRMS voltage	•	
DC/AC TRMS current	•	
Resistance and continuity test	•	
Data HOLD, MAX/MIN/AVG	•	
Voltage and current PEAK measurement	•	
Leakage current measurement *(with optional clamps HT96U)*	•	
Activation of measurements *(with optional remote probe PR400)*		•
Help on line on the display		•
Storage of results		•
Optical/USB interface for connection to PC		•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 550V	CAT III 265V
Power supply	4x1.5V	4x1.5V
Dimensions (LxWxH) mm	240x100x45	222x162x57
Weight (with batteries)	450g	1Kg

ACCESSORIES	Code
Standard	
2-terminal cable with SHUKO plug *(only M73)*	C2075
3-terminal cable with SHUKO plug *(only SPEED418)*	C2033X
Set of 2 cables with lest leads + 2 alligator clips *(only M73)*	KIT0075
Carrying bag *(only M73)*	BORSA75
Carrying bag *(only SPEED418)*	BORSA75N
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
PC Windows software + optical / USB cable *(only SPEED418)*	TOPVIEW2006
Set of 3 cables + 3 alligator clips + 1 test leads *(only SPEED418)*	UNIVERSALKIT
Clamp 1-100-1000A/1V AC, diameter 54mm *(only M73)*	HT96U
Clamp 400A AC, diameter 30mm *(only M73)*	HT4003
Clamp 200A/1V AC, diameter 40mm *(only M73)*	HT4005K
Clamp 10-100A/1V DC, diameter 32mm *(only M73)*	HT4004N
Adapter for connection of HT96U, HT4004N, HT4005K clamps *(only M73)*	NOCANBA
Switch probe *(only SPEED418)*	PR400
Hands-free kit *(only SPEED418)*	SP-0400
Magnetic adapter for connection to screw heads	606-IECN
Safety flexible alligator clip	6007-IEC#

Optional accessories

PR400
Switch probe

SPEED418
HV000418

HT
SPEED 418
RCD
ENTER
ESC MENU
HELP
GO STOP
SAVE

M73
HV000073

HT
M73
30
MULTITEST
FUNCTIONS
GO

M72 - ISO410
MULTIFUNCTION INSTRUMENT FOR MEASURING INSULATION AND CONTINUITY OF PROTECTIVE CONDUCTORS

Models M72 and ISO410 are innovative instruments for carrying out insulation resistance measurements on civil and industrial electric systems in compliance with standard IEC/EN61557-1 but with a great flexibility for use in compliance with standards such as IEC/EN60204-1 (electric machines) or IEC/EN60439-1 (ANS electric panels). Model ISO410, differently from M72, allows storing each measurement result in its own internal memory and downloading the saved data onto the PC with the aid of the dedicated software. ISO410 also allows carrying out measurements by using a remote switch (optional accessory PR400), which makes it much easier to carry out more measurements one after the other. Model M72 is provided with a powerful multimeter function for measuring quantities in true RMS value (TRMS), which is useful when solving any kind of electric problem.

FUNCTIONS	M72	ISO410
Continuity with 200mA	•	•
Insulation with 250, 500VDC	•	•
Insulation with 50, 100, 250, 500, 1000VDC		•
Insulation measuring range	0.01MΩ-2GΩ	0.01MΩ-2GΩ
Automatic discharge of tested item	•	•
Measuring probe self-calibration	•	•
Limit setting on measurement		•
Phase sequence indication	•	
DC/AC TRMS voltage	•	
DC/AC TRMS current	•	
Resistance and continuity test	•	
Data HOLD, MAX/MIN/AVG	•	
Voltage and current PEAK measurement	•	
Leakage current measurement *(with optional clamp HT96U)*	•	
Activation of measurements *(with optional remote probe PR400)*		•
Help on line on the display		•
Storage of results		•
Optical/USB interface for connection to PC		•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 550V	CAT III 265V
Power supply	4x1.5V bat.type AA	6x1.5V bat.type AA
Dimensions (LxWxH):	240x100x45	222x162x57
Weight (batteries included)	450g	1Kg

ACCESSORIES	Code
Set of 2 cables with lest leads + 2 alligator clips *(only M72)*	KIT0075
Set of 3 cables + 3 alligator clips + 1 test leads *(only ISO410)*	UNIVERSALKIT
Carrying bag *(only M72)*	BORSA75
Carrying bag *(only ISO410)*	BORSA75N
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
PC Windows software + optical / USB cable *(only ISO410)*	TOPVIEW2006
Clamp 1-100-1000A/1V AC, diameter 54mm *(only M72)*	HT96U
Clamp 400A AC, diameter 30mm *(only M72)*	HT4003
Clamp 200A/1V AC, diameter 40mm *(only M72)*	HT4005K
Clamp 10-100A/1V DC, diameter 32mm *(only M72)*	HT4004N
Adapter for connection of HT96U, HT4004N, HT4005K clamps *(only M72)*	NOCANBA
Switch probe *(only ISO410)*	PR400
Hands-free kit *(only ISO410)*	SP-0400
Magnetic adapter for connection to screw heads	606-IECN
Safety flexible alligator clip	6007-IEC#

Optional accessories

PR400
Switch probe

HT
M72
MΩ
999
518
OK
MULTITEST
FUNCTIONS
GO

M72
HV000072

HT
ISO 410
MΩ
----MΩ
TMR 50V 0.25M 10s
Func VNom Lim Time
ENTER
ESC MENU
HELP
GO STOP
SAVE

ISO410
HV000410

EQUITEST7051
INSTRUMENT FOR CONTINUITY OF EARTH CONDUCTOR WITH 10A AND LINE/FAULT IMPEDANCE

The EQUITEST5071 model is principally designed to perform the safety verifies of earth equipotential conductors with test current > 10A in compliance with IEC/EN61557, VDE100 and IEC/EN60204-1:2006 guidelines (medical rooms and safety of electrical machines). The instrument performs even continuity measurements with 200mA, Line/Fault impedance also with high resolution (0.1mOhm – with IMP57 optional accessory), global earth resistance without RCDs tripping and phase sequence indication. Each test can be saved inside the internal memory and downloaded to PC by using supplied Windows software.

FUNCTIONS

- Continuity on protective conductors with 200mA
- Continuity on protective conductors with 10A and voltage <12V
- Continuity with 10A in compliance with IEC/EN60204-1:2006
- 4 wires measurement method
- Line/Loop impedance with calculation of the prospective short circuit current
- Line/Loop impedance with high resolution (with IMP57 optional accessory)
- Global earth resistance without RCDs tripping
- Contact voltage
- Phase rotation with 3 wires method
- Save results inside memory
- Recall measured test at display
- Optical/USB interface for PC communication
- Auto Power OFF
- Backlight

ACCESSORIES	Code
Standard	
Cable 3 wires with Shuko plug	C2033X
Set 3 cables + 3 alligator clips + 1 test lead	UNIVERSALKIT
Power cord for test 10A	C5700
Set of cables for 10A test, length 3m	C7000
Soft carrying bag	BORSA2051
Windows software + optical/USB cable C2006	TOPVIEW2006
ISO9000 calibration certificate	
User manual on CD-ROM	
Quick reference guide	
Optional	
Set cables for 10A test, 5m length	C7000/05
Set cables for test 10A, 10m length	C7000/10
Accessory for high resolution Loop/Line Impedance	IMP57
Set of straps for use of meter on neck	CN0050
Connector for banana cables, black color	1066-IECN

NEW
EQUITEST 5071
HT
LOWΩ10AE204
30.11.12
0.009Ω
22.6A
LUN: 50.0
SEZ: 4.0

EQUITEST5071
HV005071

M70
COMBINED INSTRUMENT FOR MEASURING INSULATION AND CONTINUITY OF PROTECTIVE AND EQUIPOTENTIAL CONDUCTORS

Model M70 is an innovative instrument, perfectly portable and mainly suitable for measuring insulation resistance with test voltage up to 1000VDC and continuity of protective and equipotential conductors with a current of 200mA, in compliance with the requirements of standard IEC/EN61557-1 in civil and industrial electric systems. The instrument can also be used for measuring insulation on electric panels in compliance with standard IEC/EN60439-1. Thanks to the LOCK function, insulation measurement can be carried out continuously over time, thus testing the insulation of the item being tested, by carrying out duration tests. Measurement with programmable timer between 2 and 60s is also possible. The functions also include measurement of AC/DC voltage, measurement of resistance and continuity test with buzzer, as a common digital multimeter. The wide and backlit custom display for comfortably reading measures also in poorly lit environments, the ergonomic structure with small overall dimensions, the innovative electronic selector and the extremely light weight make M70 an indispensable instrument for all industrial installers and/or testers.

FUNCTIONS

- Insulation with 250, 500, 1000VDC test voltage
- Measuring range up to 4GΩ
- Automatic discharge of tested item
- LOCK function for continuous measurements
- Insulation with programmable timer between 2 and 60s
- Continuity of protective conductors with 200mA
- Measuring probe self-calibration
- AC/DC voltage up to 600V
- Resistance and continuity test with buzzer
- Wide backlit display
- AutoPowerOFF
- Weight: approx. 2kg

TECHNICAL SPECIFICATIONS

Insulation resistance	
Test voltage:	250, 500, 1000VDC
Measuring range:	0.001MΩ ÷ 4GΩ
Resolution:	0.001MΩ ÷ 1MΩ
Basic accuracy:	±(2.0%rdg + 5dgt)
Overload protection:	605V max rms
Continuity of protective conductors	±(1.0%rdg + 2dgt)
Test current:	>200mADC
Measuring range:	0.01© ÷ 19.99Ω
Resolution:	0.01Ω
Basic accuracy:	±(2.0%rdg + 3dgt)
Overload protection:	605V max rms
AC/DC voltage	
Measuring range:	0.1V ÷ 600V
Resolution:	0.1mV
Basic accuracy:	±(0.5%rdg + 1dgt)
Overload protection:	600V AC rms

GENERAL SPECIFICATIONS

Display with backlighting:	LCD, 4 dgt, 10000 points
Power supply:	4x1.5V batteries type AA
AutoPowerOFF:	after 15 min of idleness
Safety:	IEC/EN61010-1
Measurement category:	CAT III 550V
Dimensions (LxWxH):	240x100x45mm
Weight (batteries included):	450g

ACCESSORIES

Standard
Set of 2 cables + 2 alligator clips + 1 test lead
Batteries
Carrying bag
CE declaration of conformity
User manual

HT
M70
AUTO
LOCK
ZERO
8.8.8.8
IsoTest
LOCK
ZERO
FUNCTIONS
GO
1000V MΩ
500V MΩ
250V MΩ
LoΩ

M70
HV000070

HT7052
PROFESSIONAL **10kV** INSULATION TESTER

HT7052 is a portable battery/mains powered test instrument intended for the testing of insulation resistance by using high test voltages of up to 10kV. It is a professional high voltage insulation tester with added diagnostics tools such as Polarization Index (PI), Dielectric Absorption Ratio (DAR) and Dielectric Discharge (DD). HT7052 is specially well suited for: power transformers, measuring transducers in distribution networks, testing insulation resistance of rotating machinery and cables, production line periodic testing and maintenance, troubleshooting and analysis of all kinds of insulation problems, etc. Because of its robustness (CAT IV protection), it is best suited for industrial environment. A dot matrix LCD offers easy-to-read results and all associated parameters. The operation is straightforward and clear to enable the user to operate the instrument without the need for special training. Test results can be stored on the instrument and transferred to the PC for further analysis.

FUNCTIONS

- Insulation resistance up to 10TΩ
- Diagnostics tools (PI, DAR, DD)
- Step voltage insulation test
- Test voltage from 500V up to 10kV DC, adjustable in 25V steps
- Maximum charging current 5mA
- Automatic discharge of capacitive loads
- Digital and bar graph results with date and time
- PC software for downloading and analyzing test results and test report printing
- RS232 and USB isolated communication ports
- High quality accessories including shielded test leads in standard set
- Mains and rechargeable battery power supply
- High EM interference protection

GENERAL SPECIFICATIONS

Display:	LCD custom with backlight and bargraph
External power supply:	90-260V AC, 45-65Hz, 70VA
Internal power supply:	rechargeable battery
Battery life:	4h operation at 10kV
Internal memory:	1000 locations
PC connection:	RS232 and USB
Insulation:	double insulation
Pollution degree:	2
Mechanical protection:	IP53 (closed case)
Installation category:	CAT IV 600V
Dimensions (LxWxH):	330x360x160mm
Weight:	5.5kg

ACCESSORIES

Standard

- 10kV shielded 2m test lead with probe
- Set of 2 10kV shielded 2m test leads
- Set of alligator clips
- Guard 2m test lead (green)
- Guard alligator clip (green)
- Set of 6 NiMH 1.2V type D batteries
- Mains cable
- ISO9000 calibration certificate
- User manual
- PC software + RS232 and USB cables

Optional

- Set of 2 10kV shielded 8m test leads
- Set of 2 10kV shielded 15m test leads

HT7052
HV007052

HT7051

METER FOR INSULATION RESISTANCE MEASUREMENTS PROGRAMMABLE UP TO **5kV DC**

HT7051 is a meter designed to perform professional insulation resistance measurements with test voltage up to 5kV DC. This feature permits a wide range of applications in industrial plants as maintenance of rotating equipments, transformers, high voltage insulation systems, electrical cables, etc. Automatic, manual timer and programmable modes are available for both models. In programmable mode the user can be select up to three ramp features in order to completely customize the times and values of test voltage application. Other integrated available measurements are the Polarization Index (PI) and the Dielectric Absorption Ratio (DAR). The model have internal memory to save the results and a PC RS-232 interface for PC connection. All effort have been spent to create products which can be adjusted according to the standard amendments in the field of insulation measurements.

FUNCTIONS

- Insulation test with test voltage from 100 to 5kV DC
- Measurement range up to 10TΩ
- Measurements with fixed test voltages
- Up to 3 voltage/time test ramps available in programming mode
- SMOOTH feature for stable measurement results
- Dielectric leakage current measurements
- Polarization index (P.I.) measurement
- Dielectric Absorption Ratio (D.A.R) measurement
- Discharging capacitance measurement
- DC/AC TRMS voltage measurement up to 600V
- Rechargeable NiMH internal battery
- GUARD input terminal
- Automatic object discharge after test

ACCESSORIES	Code
Standard	
Set of 3 cables with alligator clips + 2 cables with test leads	KIT14000
Power supply cord	C7001
Carrying bag for accessories	BORSA2000N
PC software + RS-232 serial cable	TOPVIEW
ISO9000 calibration certificate	
User manual	
Optional	
USB to RS232 adapter	C2009

GENERAL SPECIFICATIONS

Display:	LCD custom with backlight and bargraph
External power supply:	220-240V, 50/60Hz, 20VA
Internal power supply:	rechargeable NiMH battery
Protection fuse:	T 200mA H 250V
Battery life:	> 1000 test (@ 5kV on 5M)
AutoPowerOFF:	After 5 minutes of idleness
Internal memory:	700 locations
Serial interface:	RS-232 optoinsulated
Safety:	IEC/EN61010-1, IEC/EN61557-1
Insulation :	double insulation
Pollution degree :	2
Mechanical protection :	IP53 (closed case)
Category of measure:	CAT IV 600V (to ground)
Dimensions (LxWxH):	360x310x195mm
Weight:	3.5kg

HT7051
5000
0000

HT7051
HV007051

M71 - GEO416
INSTRUMENTS FOR MEASURING EARTH RESISTANCE AND GROUND RESISTIVITY

Models M71 and GEO416 are innovative instruments for measuring ground resistance with 2-wire and 3-wire methods and ground resistivity (only GEO416) with 4-wire method in compliance with reference standards. The instruments allow carrying out measurements with a wide measuring range (50kΩ) and an efficient internal compensation of the disturbance effects present on systems. Model GEO416, differently from model M71, allows storing each measurement result in its own internal memory and to download the saved data with the aid of the dedicated software.

FUNCTIONS	M71	GEO416
2-wire earth measurement	•	•
3-wire earth measurement	•	•
Measuring range	0.01Ω-50kΩ	0.01Ω-50kΩ
4-wire method ground resistivity		•
Compensation of disturbance voltages	•	•
Compensation of test cables	•	•
Storage of results		•
Optical/USB interface for connection to PC		•
Safety	EN61010-1	EN61010-1
Measurement category	CAT III 240V	CAT III 265V
Power supply	4x1.5V bat.type AA	6x1.5V bat.type AA
Dimensions (LxWxH)	240x100x45	222x162x57
Weight (batteries included)	630g	1kg

ACCESSORIES	Code
Standard	
Set of 3 cables + 3 alligator clips 2 metal probes *(only M71)*	KIT0071
Set of 4 cables + 4 metal probes *(only GEO416)*	KITTERRNE
Set of 4 alligator clips *(only GEO416)*	COC4-UK
Carrying bag *(only M71)*	SP-6085
Carrying bag *(only GEO416)*	BORSA2000N
ISO9000 calibration certificate	
User manual on CD-ROM *(only M71)*	
Quick reference guide *(only M71)*	
Optional	
PC Windows software + optical / USB cable *(only GEO416)*	TOPVIEW2006

HT
M71
GROUNDTEST

M71
HV000071

HT
GEO 416
349 Ωm
2W 3W
MOD
DIST
UNIT
ENTER
ESC
RCL CLR
GO
SAVE

GEO416
HV000416

T2000 - T2100

EARTH GROUND CLAMP METERS

The T2000 and T2100 models are designed for the resistance measurement on earth probes with ground loop method without the disconnection of parts of plants under test. This type of measurement carried out by the instruments can be used for evaluation of single rods' resistances within an earth installation assuming they do not affect each other. The inner part of the instrument is made of 2 jaws one for current and one for voltage. The voltage toroid generates a potential (E) on the loop during resistance measurement. A current (I) is consequently generated on the loop and is measured by the current jaws. Based on the value of parameters E and I the instrument displays the resistance value R calculated as their ratio. The T2000 model also performs AC current up to 20A and leakage current with 0.05mA resolution and the setting of alarm thresholds on measurements is possible. The T2100 is equipped with a half-duplex RS-232 interface for connection with MACROTESTG3 instrument only and transfer the saved data on it. The instruments are compliance with IEC/EN61010-1, CAT III 150V and is ideal for simple measurements both in domestic and industrial environments.

FUNCTIONS

- Resistance measurement on earth probes with ground loop method
- Direct measurement on earth probes without any cable breaking
- Measurement of leakage current on earth installations *(only T2000)*
- RS-232 half-duplex interface *(only T2100)*
- Calculation of parallel of probe resistance *(only T2100)*
- Setting of alarm thresholds on measurements with buzzer
- Storage of measurement results
- Detection of current noise on measurement
- Data HOLD function
- Backlight
- Auto Power OFF

GENERAL SPECIFICATIONS

Power supply:	4x1.5V type AA LR6 alkaline batteries
Display:	4 LCD, sign, decimal point and backlight
Internal memory:	99 locations
RS-232 interface:	half duplex, 4800 baud *(only T2100)*
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Max cable diameter:	32mm
Measurement category:	CAT III 150V (to ground), max 20A
Auto Power OFF:	after 5 minutes of idleness
Dimensions (LxWxH):	293 x 90x 66mm
Weight (battery included):	approx. 1.3kg

ACCESSORIES

Standard

- Resistive test loop
- RS-232 connection cable, 1.5m length *(only T2100)*
- Batteries
- Carrying case
- ISO9000 calibration certificate
- User manual

T2000
HP002000
NEW
HT T2000
Ω/A/RECALL ESC
CLEAR ALL
CLEAR LAST (>2sec) MEM
SET LIM. (>2sec) HOLD
INPUT MAX 20A~ CAT III 150V
OL. Ω

NEW
T2100
HP002100
HT MACROTEST
HT T2100
Ω / RECALL / RS232 ESC
CLEAR ALL
CLEAR LAST (>2sec) MEM
Rparallel (>2sec) SET LIM. (>2sec) HOLD
CAT III 150V
232

FULLTEST3

MULTIFUNCTION INSTRUMENT FOR TESTS ON ELECTRICAL MACHINES (IEC/EN60204-1:2006) AND ELECTRICAL PANELS (IEC/EN61439-1)

The innovative model FULLTEST3 was designed to perform safety tests on electric machines and panel boards in compliance with IEC/EN60204-1 and IEC/EN61439-1. Thanks to its features the instrument allows to carry out several tests with a high flexibility of use so fully or partially complying with other standards (e.g. routine tests according to IEC/EN60335-1). In addition to insulation, withstanding and continuity measurements on protective conductors FULLTEST3 is capable of performing tests on both general and selective RCDs type A, AC and B as well as Line/Fault impedance with high resolution 0.1 mΩ (with optional accessory model IMP57), overall earth resistance without RCD tripping and leakage current with current transducer. The instrument is provided with a modern color touch-screen graphic LCD, three USB ports for connection to PC, USB pen drive, USB printers and any bar code reader.

FUNCTIONS

- Continuity of earth conductors with 200mA
- Continuity of earth conductors with I>10A, V<12V
- Continuity of earth conductors with I>25A, V<12V
- Insulation with 100, 250, 500, 1000VDC
- Withstanding test with test voltage from 250V to 5100V
- Withstanding test in BURN mode
- Discharging time on DUT's plug and internal circuits
- Leakage current on machine's socket
- General and selective type A, AC and B RCD tripping time and current (up to 1000mA nominal current)
- Contact voltage
- Line/Fault impedance and prospective short circuit/fault current
- Line/Fault impedance with high resolution (0.1mΩ) with IMP57 optional accessory
- Prospective short circuit/fault current
- Global earth resistance without RCD's tripping
- Phase sequence
- Leakage current by means of HT96U optional accessory
- Adjustable timer
- Adjustable thresholds
- Touch screen color display
- Internal memory
- Fuse-protected inputs
- USB port for PC connection
- USB ports to connect memory sticks, USB printers, barcode readers, etc.
- Power supply: 230V, 50/60Hz
- Safety: IEC/EN61010-1, IEC/EN61557-1-2-3-4-6-7
- Dimensions (LxWxH): 400x300x170mm
- Weight (accessories excluded): 14kg

ACCESSORIES	Code
Standard	
Power cable	
Set of 2x 2.5mm2 red 3m long cables	
Set of 0.75mm2 blue and green 3m long cables	
Set of 2x 5kV withstanding test cables	
Bananas to schuko-plug cable	
3x CATIII test lead	
3x CATII test lead	
3x alligator clip	
Windows software with USB cable	
Carrying bag for accessories	
ISO9000 calibration certificate	
User manual	
Optional	
Accessory for loop impedance with high resolution	IMP57
Leakage current transducer	HT96U

NEW
WITH
TOUCH -SCREEN
DISPLAY

FULLTEST3
HV000003

HT2055
STEP/CONTACT VOLTAGE METER UP TO 50A

HT2055 is composed of a power unit and a meter designed to perform step/contact voltage measurements on electrical installations such as HV power stations (TN systems, electrical substations) with rated test current up to 50A according to international guidelines. Both units, initially synchronized in time and current, can perform an exact calculation of step and contact voltage values applying the real test current measured by the station. A internal DSP filter also performs the automatic compensation of noise voltage disturbances affecting the measuring circuit. The instrument permits also measurement of earth resistance with 3-wire method and ground resistivity with 4-wire Wenner method. All results can be saved into an internal memory and downloaded to PC through Windows software.

GENERAL SPECIFICATIONS

Power unit
- Power supply: 110/230V AC, 50/60Hz
- Output power: 900VA
- Output current: max 55A
- Test frequency: 55Hz
- Voltage measurement: 0.1 ÷ 999V
- Resolution: 0.1 ÷ 1V
- Basic accuracy: ±2% reading
- Display: LCD 240x128 counts + backlight
- Memory: 2000 locations
- Communication interface: RS-232
- Measurement category: CAT II 300V
- Protection: fuse T 6.3A/250V
- Pollution degree: 2
- Mechanical protection: IP40 (closed cover)
- Dimensions (L x W x H): 335x335x160mm
- Weight: 28kg

Voltmeter unit
- Voltage measurement: 0.1 ÷ 999V
- Resolution: 0.1 ÷ 1V
- Resistance measurement: 0.001 ÷ 99.99Ω
- Resolution: 0.01Ω
- Basic accuracy: ±2% reading
- Input impedance: 1kΩ /1MΩ selectable
- Display: LCD 240x128 counts + backlight
- Memory: 2000 locations
- Communication interface: RS-232/USB
- Power supply: 6x1.2V rechargeable batteries type AA
- Pollution degree: 2
- Mechanical protection: IP40
- Dimensions (L x W x H): 230x115x103mm
- Weight: 1.3kg

ACCESSORIES

Standard
- Power unit
- Voltmeter unit
- Power cord for power station
- Metal current probe, 1m length
- Metal voltage probe, 60cm length
- Metal plate (200x100mm), 2 pcs
- Test cable, 50m, 10mmq, with alligator clip on reel
- Test cable, 10m, 10mmq, with alligator clip
- Black test cable, 3 m, with industrial plugs, 2 pcs.
- Red test cable, 50m
- Green test cable, 10m
- Black test cable, 1.5m
- Red test cable with crocodile, 1m
- Alligator clips, 4 pcs
- USB cable
- RS-232 cable
- Soft carrying bag, 2 pcs
- Neck strap
- 6 x 1.2V rechargeable batteries NiMH type AA, LR03
- External adapter 100-240V AC / 12V DC
- Windows software on CD-ROM
- User manual
- ISO9000 calibration certificates

Optional
- Metal current probe, 1m length
- Metal voltage probe, 60cm length

FUNCTIONS

- Measurement of Step/Contact voltage through separate units
- Synchronization between units
- Test current up to 50A
- LCD dot matrix display on both units
- Earth resistance measurement
- Internal memory for data storage
- USB and RS-232 ports for communication between units and PC
- DSP filtering for compensation of noise disturbances
- Windows software

HT2055S
Step Contact Voltage Measuring System
Step Contact Station
HT2055M
Step Contact Meter

HT2055
HN002055

IMP57

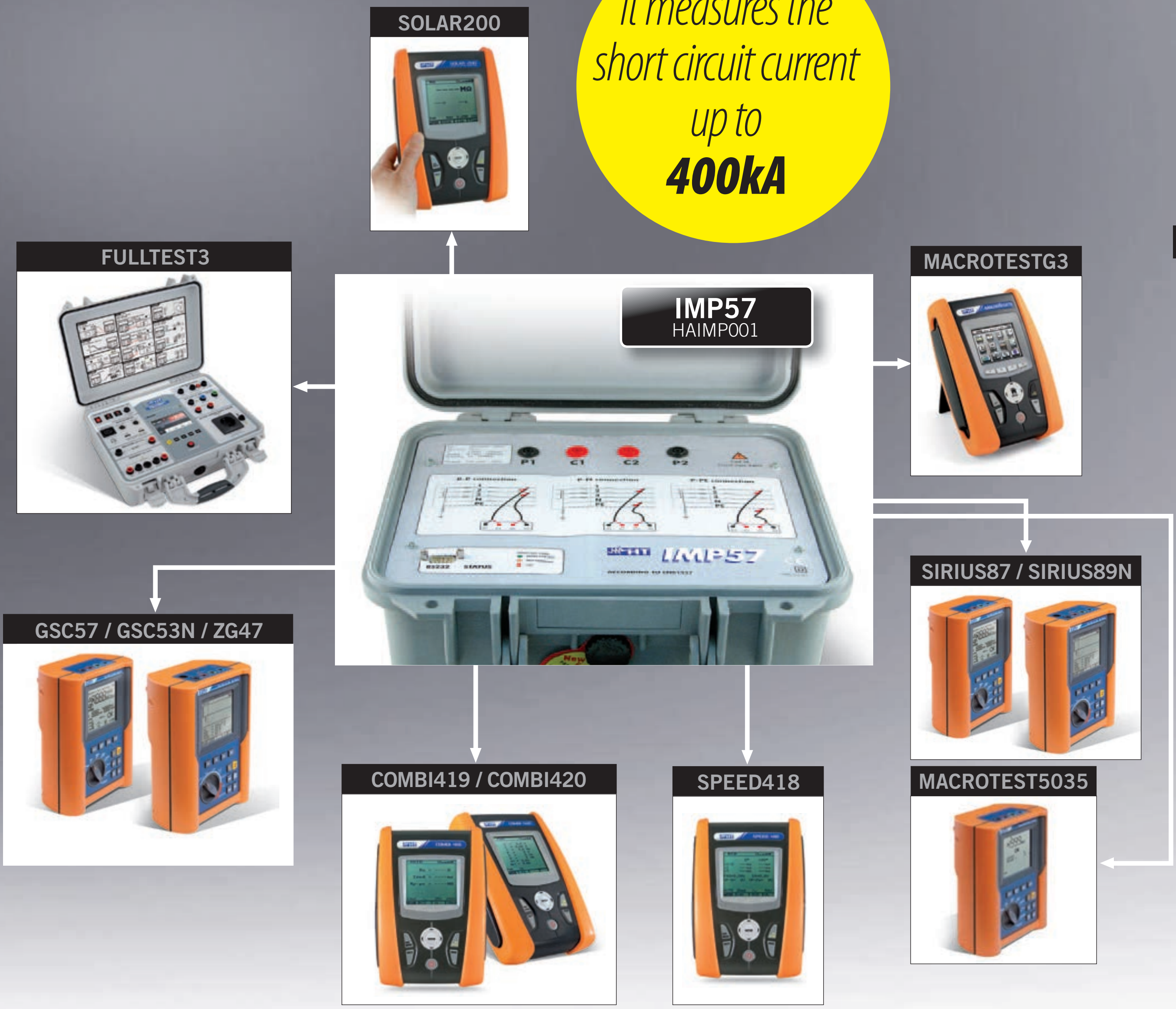
ACCESSORY FOR MEASURING HIGH-RESOLUTION LOOP IMPEDANCE AND ASSUMED SHORT-CIRCUIT CURRENT UP TO 400kA

The accessory IMP57 has been conceived for technical departments and measuring technicians, in order to measure, in combination with HT ITALIA instruments fault loop impedance / line impedance and to calculate the assumed short-circuit current, which is essential for determining the dimension of the protections provided in common industrial electric systems. The high generated test current (max. 200A) allows carrying out high-resolution measurements (0.1mΩ) and, therefore, obtaining correct and precise results, even near MT/BT transformers. IMP57 consists in a practical and resistant suitcase structure, it has no display and it can be interfaced by RS232 serial connection to the above-mentioned instruments (called Master) in order to obtain the results' reading. The 4-terminal measurement allows ignoring the effect of the resistance of the supplied cables and, therefore, no preliminary calibrations are necessary.

FUNCTIONS	
Type of measurement:	P-N, P-P, P-PE Loop/Line impedance and short circuit current calculation
Resolution of measurement:	0.1mΩ (Zloop) ; 1A (Ipsc)
Test current:	approx: 200A
Frequency range:	50Hz ± 5%
Dimensions (LxWxH):	340x300x150mm
Weight:	4.1kg

ACCESSORIES	Code
Standard	
2 test cables, 3m length, with alligator clips	C7000
RS-232 serial cable	C2001
Carrying bag	B80
ISO9000 calibration certificate	
User manual on CD-ROM	
FW upgrading CD-ROM	

It measures the short circuit current up to ***400kA***



DIGITAL **MULTIMETERS**

Model	**HT8051**	**HT8000**	**HT8100**	**HT401**	**HT701**	**HT321**	**HT322**	**HT326**	**HT327**
TRMS			•	•	•				•
LCD Resolution (points)	88888	88888	50000	6000	10000	2000	2000	4000	4000
DC Voltage	•(max 10V)	•(max 10V)	•	•	•	•	•	•	•
AC Voltage			•	•	•	•	•	•	•
Low impedance AC Voltage				•					
AC + DC voltage			•	•					
AC Voltage with 1 wire									
DC Current	•	•	•(1A)	•	•(400mA)			•	•
AC Current			•(1A)	•	•(400mA)			•	•
AC + DC voltage			•	•					
Resistance			•	•	•	•	•	•	•
Frequency			•	•	•			•	•
Frequency with 1 wire									
Capacitance				•	•			•	•
Continuity test with buzzer			•	•	•	•	•	•	•
Diode test			•	•	•	•	•	•	•
Duty cycle (%)								•	
Temperature with type K probe				•	•		•		
Insulation (up to 1000V)					•				
Generation of DC voltage (max 10V)	•	•							
Selectable output ramps	•(V, I)		•(I)						
Measurement of DC current 4-20mA	•	•	•	•	•				
Generation of DC current 4-20mA	•	•	•						
Phase sequence indication									
Phase sequence indication with 1wire									
Phase conformity with 1 wire									
Oveload protection	30V	30V	1000V	1000V	1000V	600V	600V	600V	600V
Category of measurement	CAT I 30V		CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT IV 600V
Bargraph				•	•				
Backlight			•	•	•		•	•	•
Autorange			•	•	•				
AutoPowerOFF		•	•	•	•	•	•	•	•
Data HOLD			•	•	•	•	•	•	•
MIN/MAX			•	•	•	MAX	MAX		
AVG			•		•				
PEAK				•					
AC/DC signal automatic detection			•						
Relative measurement			•		•			•	•
Real-time recording									
Memory			•		•				
RS-232 interface									
Dimensions (LxWxH) (mm)	195x92x55	190x89x42	207x95x52	190x94x48	207x95x52	163x88x48	163x88x48	163x88x48	163x88x48
Weight	400g	350g	630g	460g	630g	280g	280g	280g	280g
Page	48	49	50	51	52	53	53	53	53

HT32	HT37	HT39	HT710	HT712	HT210	HT21	HT12	HT603
●	●	●		●				
6000	4000	4000	4000	4000	4000	4000	3400	5000
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
				●				
●	●	●					●	
●	●	●					●	
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
				●				
●	●	●			●	●		●
●	●	●	●	●	●	●	●	●
●	●	●	●		●	●		●
					●	●		●
					●			
				●				
				●				
				●				
1000V	1000V	1000V	600V	600V	600V	600V	600V	600V
CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT III 1000V CAT IV 600V	CAT IV 600V	CAT IV 600V	CAT III 600V	CAT III 600V	CAT II 600V CAT III 300V	CAT III 300V CAT II 600V
	●	●					●	
		●			●	●		
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●
●	●	●						
	●	●						
				●				
	●	●	●		●	●		
		●						
		●						
168x82x44	168x82x44	168x82x44	250x51x30	250x51x30	138x68x37	138x68x37	128x87x24	112x56x12
400g	400g	400g	150g	150g	210g	210g	210g	115g
54	54	54	57	57	58	58	58	58

HT8051
PROFESSIONAL PROCESS CALIBRATOR

HT8051 is a professional digital process calibrator designed to generate and measure DC voltage and DC current up to 10V and 24mA respectively. Under the current generation mode you can manually select between 0-20mA and 4-20mA as well as automatic ramps on output signal. An innovative adjustment knob permits a “top-easy” settings of the output current/voltage with 0.001mA/V resolution. The instrument permits also to effect measurements of current absorbed by external transducers and simulate a transducer with current adjustable within the whole measurement range. HT8051 is designed in compliance with IEC/EN61010-1 safety standards, provided with double insulation protection with CAT I 30V. This model is ideal for the most common industrial appliances and typical laboratory activities.

FUNCTIONS

- Generation of output voltage signal with amplitude up to 10VDC
- Voltage measurement up to 10VDC
- Generation of output current signal with amplitude up to 24mADC
- Current measurement up to 24mAVDC
- Current measurement under percentage format (4-20mA)
- Adjustment selector with high sensitivity
- Up to 3 available automatic ramp selection
- Loop current of external transducers measurement
- Simulation of an external transducer
- Li-ION rechargeable battery powered
- Backlight
- Auto Power OFF

ACCESSORIES

Standard
Couple of test leads
Couple of alligator clips
Protection rubber holster
Li-ION rechargeable battery
External adapter
User manual
Carrying case

TECHNICAL SPECIFICATIONS

DC voltage (generated and measured)
Range: 0.01mV ÷ 10V
Resolution: 0.01mV ÷ 0.001V
Accuracy: ±(0.02%rdg + 4dgt)
Protection: 30VDC
DC current (generated and measured)
Range: 0.001mA ÷ 24mA
Percentage: -25% ÷ 125%
Resolution: 0.001mA
Accuracy: ±(0.02%rdg + 4dgt)
Protection:30mADC
DC voltage (generated and measured)
Λ (slow linear ramp): from 0% → 100% → 0% in 40s
M (fast linear ramp): from 0% → 100% → 0% in 15s
⌐ (step ramp): from 0% → 100% → 0% in steps of 25% with ramps of 5s each

HT
HT8051
SOUR
20.000 mA
100%
Loop
V
PROCESS CALIBRATOR
0-100%
25%
MODE
CESS CALIBRATO

NEW

HT8051
HV080510

HT8000
VOLT / MILLIAMPERE CALIBRATOR

HT8000 Volt/mA calibrator is a source and measurement tool. This calibrator can be used in measurement or output 0 to 24 mA DC current loop, and 0 to 10 V DC voltage

FUNCTIONS

- Generation of output voltage signal with amplitude up to 10VDC
- Voltage measurement up to 10VDC
- Generation of output current signal with amplitude up to 24mADC
- Current measurement up to 24mAVDC
- Current measurement in percentage format (0-24mA)
- Loop current measurement of external transducers
- Simulating of external transducer
- Auto Power OFF

GENERAL SPECIFICATIONS

Display:	5 LCD + symbol, decimal point
Power supply:	1x9V alkaline IEC6F22
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Dimensions (LxWxH):	190x89x42mm
Weight (batteries included):	350g

TECHNICAL SPECIFICATIONS

DC Voltage (measured)

Measuring range: 0.01 ÷ 10V

Accuracy: ±(0.02rdg +2dgt)

DC Voltage (generated)

Measuring range: 0.01 ÷ 10.V

Accuracy: ±(0.02rdg +2dgt)

DC Current (measured)

Measuring range: 0.001 ÷ 24.000mA -25.00 ÷ 125.00%

Accuracy: ±(0.015%rdg+4dgt)

DC Current (generated)

Measuring range: 0.001 ÷ 24.000mA -25.00 ÷ 125.00%

Accuracy: ±(0.015%rdg+4dgt)

Loop mode

Measuring range: 24V DC

ACCESSORIES

Standard

KIT4000A Couple of test leads

Battery

User manual

Carrying case

HT8000
HV008000

HT8000
0.000 V
POWER
INPUT OUTPUT
+LOOP
INPUT
COM
V
OUTPUT

HT8100

MULTIMETER/PROFESSIONAL PROCESS CALIBRATOR

HT8100 is a professional instrument performing functions as a TRMS multimeter and as a process calibrator capable of generating DC current signals 0-20mA and 4-20mA. As a digital multimeter it mainly carries out measurements of AC/DC voltage, AC/DC current. When generating current (values can be displayed even in percentage) modes 0-20mA and 4-20mA are available with manual and automatic threshold setting on output signal. The instrument also permits to effect measurement of current absorbed by external transducers and simulate a transducer with current adjustable on the whole measuring range. HT8100 can save measurement results into an internal memory and it is designed in compliance with safety standards IEC/EN61010-1 in CAT III 1000V and CAT IV 600V with double insulation protection. Each function can be selected pressing the front panel's keys. The instrument represents the best solution for applications in industrial automation.

FUNCTIONS
DC/AC TRMS voltage
DC/AC TRMS current
AC + DC measurements
Automatic AC/DC signal detection
Resistance and continuity test
Frequency
Diode test
DC current generation up to 20mA DC
Percentage display (0-20mA, 4-20mA)
Measurement of transducer current (Loop)
Simulation of an external transducer
Fused input protection
Storage to save measurements
Data HOLD
MAX/MIN/AVG
Relative measurement
Automatic/Manual range
Auto Backlight
Auto Power OFF

TECHNICAL SPECIFICATIONS
DC Voltage
Measuring range: 0.001mV ÷ 1000V
Basic accuracy: ±(0.05% rdg + 5dgt)
AC TRMS Voltage
Measuring range: 0.001mV ÷ 1000V
Basic accuracy: ±(0.5% rdg + 20dgt)
DC Current measurement
Measuring range: 0.001mA ÷ 1.0000A
Basic accuracy: ±(0.05% rdg + 5dgt)
AC TRMS Current measurement
Measuring range: 0.001mA ÷ 1.0000A
Basic accuracy: ±(1.0% rdg + 20dgt)
DC Current generation
Measuring range: 0.000mA ÷ 20.000mA
Measuring range: 4.000mA ÷ 20.000mA
Basic accuracy: ±5dgt
Resistance and continuity test
Measuring range: 0.01Ω ÷ 50.000MΩ
Basic accuracy: ±(0.1% rdg + 10dgt)
Buzzer: <30Ω
Diode test
Measuring range: 2.000V
Basic accuracy: ±(1.0% rdg + 10dgt)
Frequency
Measuring range: 0.01Hz ÷ 100.00kHz
Basic accuracy: ±3dgt

HT
HT8100
AUTO TEST
APO
AC
mV
2.198
STORE RECALL MAX MIN AVG
RANGE HFR ENTER A-HOLD
Hz CANCEL REL Δ
OFF
TRUE RMS
OUTPUT 0-24mA
SOURCE SIMULATE
COM

HT8100
HV008100

GENERAL SPECIFICATIONS	
Display:	LCD, 5 digits, 50000 counts
Power supply:	4x1.5V alkaline batteries type AA LR6
Battery life:	120 hours
Auto Power OFF:	after 20 minutes of idleness
Safety:	IEC/EN61010-1
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	207x95x52mm
Weight (batteries included):	630g

ACCESSORIES
Standard
Pair of test leads
Pair of alligator clips
Belt with magnetic end for fastening to metal surfaces
Protection shell
Batteries
User manual

HT401
PROFESSIONAL MULTIMETER WITH AC+DC TRMS MEASUREMENT

HT401 is a TRMS professional digital multimeter capable of measuring AC/DC voltage and AC/DC current. Among its several functions AC+DC mode is used to take into account DC components on the AC signal while AC voltage measurement under low impedance condition reduces measurement influences between adjacent conductors. HT401 is designed to comply with safety standards IEC/EN61010-1 under CAT III 1000V and CAT IV 600V with double insulation protection. It is provided with auto power off and back light function to carry out measurements under poorly lighted environments.

TECHNICAL SPECIFICATIONS

DC Voltage

Measurement range: 0.01mV ÷ 1000V

Basic accuracy: ±(0.08%rdg + 2dgt)

AC TRMS Voltage

Measuring range: 0.01mV ÷ 1000V

Basic accuracy: ±(0.8%rdg + 5dgt)

AC+DC TRMS Voltage

Measuring range: 0.01mV ÷ 1000V

Basic accuracy: ±(2.0%rdg + 5dgt)

Auto-V (low impedance AC/DC Voltage measurement)

Measuring range: 0.1V ÷ 1000V

Basic accuracy: ±(0.8%rdg + 3dgt)

DC Current

Measuring range: 0.01mA ÷ 10.00A

Basic accuracy: ±(0.8%rdg + 3dgt)

AC TRMS Current

Measuring range: 0.01mA ÷ 10.00A

Basic accuracy: ±(1.2%rdg + 3dgt)

AC+DC Current

Measuring range: 0.01mA ÷ 10.00A

Basic accuracy: ±(2.0%rdg + 5dgt)

Frequency

Measuring range: 0.01Hz ÷ 100.00kHz

Basic accuracy: ±(0.1%rdg + 2dgt)

Resistance and continuity test

Measuring range: 0.1Ω ÷ 40.00MΩ

Basic accuracy: ±(0.8%rdg + 2dgt)

Buzzer: <30Ω

Diode test

Measuring range: 2.000V

Basic accuracy: ±(1.5%rdg + 2dgt)

Capacitance

Measuring range: 0.001μF ÷ 10.00mF

Basic accuracy: ±(1.2%rdg + 2dgt)

Temperature with K probe

Measuring range: -40.0°C ÷ 400°C
-40.0°C ÷ 752°F

Basic accuracy: ±(1.0%rdg + 10dgt)
±(1.0%rdg + 18dgt)

GENERAL SPECIFICATIONS

Display:	LCD, 4 digits, 6000 counts
Power supply:	1x9V alkaline battery type 6F22
Battery life:	150 hours
Auto Power OFF:	after 20 minutes of idleness
Safety:	IEC/EN61010-1
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	190x94x48mm
Weight (batteries included):	460g

FUNCTIONS

- DC/AC TRMS voltage
- DC/AC TRMS current
- AC + DC measurement
- AC voltage measurement with low impedance
- “VoltSense” for AC voltage detection without contact
- Resistance and continuity test
- Frequency
- Diode test
- Capacitance
- Temperature with K type probe
- Data HOLD
- MAX/MIN/PEAK
- Relative measurement
- Automatic/Manual range
- Backlight
- Bargraph
- Auto Power OFF

ACCESSORIES

Standard

- Test leads
- K-type probe adapter
- K-type bead probe
- Battery
- User manual

Optional

- K-type probes

HT401
TRUE RMS
COM
mA
A
OFF
AutoV LoZ

HT401
HR000401

HT701
PROFESSIONAL MULTIMETER WITH INSULATION MEASUREMENT

HT701 is a professional instrument working as TRMS multimeter and insulation resistance tester with test voltage selectable among 50, 100, 250, 500, 1000VDC. HT701 can save test results into its internal memory and is designed according to safety standards IEC/EN61010-1 under CAT III 1000V and CAT IV 600V with double insulation protection. Each function can be selected pressing the front panel's keys. The instrument represents the best solution for applications in industrial automation.

FUNCTIONS
DC/AC TRMS voltage
DC/AC TRMS current
Insulation with test voltage up to 1000VDC
Resistance and continuity test
Frequency
Diode test
Capacitance
Temperature with K type probe
Internal memory for measurement storage
Data HOLD
MAX/MIN
Relative measurement
Automatic/Manual range
Backlight
Bargraph
Auto Power OFF

GENERAL SPECIFICATIONS	
Display:	LCD, 10000 counts
Power supply:	4x1.5V alkaline batteries type AA LR6
Auto Power OFF:	after 20 minutes of idleness
Safety:	IEC/EN61010-1, IEC/EN61557-1-2
Measurement category:	CAT III 1000V, CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	207x95x52mm
Weight (batteries included):	630g

Insulation measurement
HT701
HR000701
HT701
0.25
AC mV
RECALL STORE
LOCK HOLD
INSULATION TEST
RANGE
OFF
mV
V
mA
SMOOTH INSULATION
TRUE RMS
COM

TECHNICAL SPECIFICATIONS
DC Voltage
Measurement range: 0.01mV ÷ 1000V
Basic accuracy: ±(0.08%rdg + 2dgt)
AC TRMS Voltage
Measuring range: 0.01mV ÷ 1000V
Basic accuracy: ±(0.9%rdg + 3dgt)
AC TRMS Voltage - HFR mode
Measuring range: 0.001V ÷ 1000.0V
Basic accuracy: ±(0.9%rdg + 3dgt)
DC Current
Measuring range: 0.01mA ÷ 400.0mA
Basic accuracy: ±(0.2%rdg + 2dgt)
AC TRMS Current
Measuring range: 0.01mA ÷ 400.0mA
Basic accuracy: ±(1.5%rdg + 2dgt)
Resistance and continuity test
Measuring range: 0.1Ω ÷ 40.00MΩ
Basic accuracy: ±(0.5%rdg + 2dgt)
Buzzer: <30Ω
Diode test
Measuring range: 2.000V
Basic accuracy: ±(0.5%rdg + 2dgt)
Frequency
Measuring range: 0.01Hz ÷ 100.00kHz
Basic accuracy: ±(0.1%rdg + 5dgt)
Capacitance
Measuring range: 0.001μF ÷ 40.00mF
Basic accuracy: ±(1.2%rdg + 2dgt)
Temperature with K probe
Measuring range: -200.0°C ÷ 1200°C -328.0°C ÷ 2192.0°F
Basic accuracy: ±(1.0%rdg + 1°C) ±(1.0%rdg + 18°F)
Insulation measurement
Test voltage: 50,100,250,500,1000VDC
Measuring range: 2.000MΩ ÷ 22.0GΩ
Basic accuracy: ±(1.5% rdg + 5dgt)

ACCESSORIES	Code
Standard	
Pair of test leads	
Pair of crocodiles	
Probe for insulation measurement	PR701
K-type probe adapter	
K-type bead probe	
Magnet strap	
Rubber holster	
Batteries	
User manual	
Optional	
K-type probes	

HT321 - HT322 - HT326 - HT327
CAT IV DIGITAL PROFESSIONAL MULTIMETER

HT320 digital multimeter series provides all the essential features in compact and easy-to-use instruments developed for every-day use. Rugged design and accurate measurements make HT320 digital multimeter series the ideal choice for electricians, HVAC technicians, etc. both for maintenance and troubleshooting.

FUNCTIONS	HT321	HT322	HT326	HT327
TRMS measurements				•
AC Voltage	•	•	•	•
DC Voltage	•	•	•	•
AC Current			•	•
DC Current			•	•
Resistance	•	•	•	•
Continuity test	•	•	•	•
Frequency			•	•
Capacitance			•	•
Duty Cycle			•	
Diode test	•	•	•	•
Data HOLD	•	•	•	•
Temp. with type K probe		•		
MAX/MIN	•(Max)	•(Max)		•
PEAK				•
Relative measurements			•	•
Manual range	•	•	•	•
Backlight		•	•	•
Bargraph				•
AutoPowerOff	•	•	•	•

GENERAL SPECIFICATIONS	
Display:	LCD, 3½ dgt, 1999 points *(HT321-HT322)* LCD, 3¾ dgt, 3999 points *(HT326)* LCD, 4 dgt, 3999 points *(HT327)*
Power supply:	2x1.5V bat. type AA LR6 *(HT321-HT322-HT326)*, 1x9V bat. type IEC6F22 *(HT327)*
Battery life:	approx 220 hours
Safety:	IEC/EN61010-1
Category of measurement	CAT IV 600V – CAT III 1000V
Pollution degree:	2
Insulation:	double insulation
Max height of use:	2000m
Dimensions (LxWxH):	163x88x48mm
Weight (batteries incl.):	280g, 400g *(HT327)*

TECHNICAL SPECIFICATIONS	HT321	HT322	HT326	HT327
DC Voltage				
Measurement range:	0.2mV ÷ 600V	0.2mV ÷ 600V	0.2mV ÷ 600V	0.1mV ÷ 1000V
Basic accuracy:	±(0.8%rdg + 1dgt)	±(0.8%rdg + 1dgt)	±(0.8%rdg + 2dgt)	±(0.5%rdg + 2dgt)
AC Voltage				
Measurement range:	0.2mV ÷ 600V	0.2mV ÷ 600V	0.1mV ÷ 600V	0.1mV ÷ 750V
Basic accuracy:	±(1.5%rdg + 3dgt)	±(1.5%rdg + 3dgt)	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
DC Current				
Measurement range:			0.01A ÷ 10A	0.1µA ÷ 10A
Basic accuracy:			±(1.2%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC Current				
Measurement range:			0.01A ÷ 10A	0.1µA ÷ 10A
Basic accuracy:			±(2.0%rdg + 5dgt)	±(1.2%rdg + 5dgt)
Resistance and continuity test				
Measurement range:	0.1Ω ÷ 20MΩ	0.1Ω ÷ 20MΩ	0.1Ω ÷ 40MΩ	0.1Ω ÷ 40MΩ
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)	±(1.0%rdg + 2dgt)	±(0.8%rdg + 2dgt)
Buzzer:	<120Ω	<120Ω	<140Ω	<35Ω
Frequency				
Measurement range:			0.01Hz÷99.99kHz	1Hz÷40.00kHz
Basic accuracy:			±(1.5%rdg + 5dgt)	±(0.1%rdg + 2dgt)
Capacitance				
Measurement range:			0.001nF ÷ 100µF	0.001nF ÷ 100mF
Basic accuracy:			±(3.0%rdg + 5dgt)	±(2.0%rdg + 8dgt)
Duty Cycle				
Measurement range:			20% ÷ 80%	
Basic accuracy:			±(1.0%rdg + 5dgt)	
Temperat. with type K probe				
Measurement range:		-40°C ÷ 800°C		
Basic accuracy:		±(2.0%rdg + 3dgt)		

ACCESSORIES	Code
Standard	
Couple of test leads	4413-2
Carrying bag	B80
Batteries	
User manual	
Optional	
Adapter for type K probes *(only HT322)*	T10
Type K probes *(only HT322)*	

HT321
HR000321
HT322
HR000322
HT327
HR000327
HT326
HR000326

HT32 - HT37 - HT39
TRMS CAT IV PROFESSIONAL DIGITAL MULTIMETER

The models HT32, HT37 and HT39 are a family of professional TRMS multimeters able to perform AC/DC voltage, AC/DC current in complete Autorange. Each model has also the MIN/MAX, Data HOLD and AutoPowerOFF features. The HT39 model is also equipped with RS-232 serial interface for connection to a PC and use of dedicated software, more than a backlight function for comfortable reading even in poorly lit environments.

FUNCTIONS	HT32	HT37	HT39
TRMS measurements	•	•	•
DC/AC Voltage	•	•	•
DC/AC Current	•	•	•
Resistance and Continuity test	•	•	•
Frequency	•	•	•
Capacitance	•	•	•
Diode test	•	•	•
Data HOLD	•	•	•
MAX/MIN	•	•	•
PEAK		•	•
Relative measurement		•	•
Bargraph		•	•
Backlight			•
AutoPowerOFF	•	•	•
Real-time recording from PC			•
RS-232 interface			•

GENERAL SPECIFICATIONS	
Display:	LCD, 4 dgt, 6000 points *(HT32)* LCD, 4 dgt, 4000 points *(HT37-HT39)*
Power supply:	1x9V battery type IEC6F22
AutoPowerOFF:	after 30 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
RS-232 interface:	optical/serial (only HT39)
Dimensions (LxWxH):	164x82x44mm
Weight (batteries included):	400g

TECHNICAL SPECIFICATIONS	HT32	HT37 - HT39
DC Voltage		
Measurement range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V
Basic accuracy:	±(0.5%rdg + 2dgt)	±(0.5%rdg + 2dgt)
AC Voltage		
Measurement range:	0.1mV ÷ 750V	0.1mV ÷ 750V
Basic accuracy:	±(0.9%rdg + 5dgt)	±(1.2%rdg + 5dgt)
DC Current		
Measurement range:	0.1μA ÷ 10A	0.1μA ÷ 10A
Basic accuracy:	±(1.0%rdg + 2dgt)	±(1.0%rdg + 2dgt)
AC Current		
Measurement range:	0.1mA ÷ 10A	10mA ÷ 10A
Basic accuracy:	±(1.5%rdg + 5dgt)	±(1.5%rdg + 5dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 60MΩ	0.1Ω ÷ 40MΩ
Basic accuracy:	±(0.7%rdg + 2dgt)	±(0.7%rdg + 2dgt)
Buzzer:	<500Ω	<450Ω
Frequency		
Measurement range:	1Hz ÷60MHz	1Hz ÷40MHz
Basic accuracy:	±(0.1%rdg + 1dgt)	±(0.1%rdg + 1dgt)
Capacitance		
Measurement range:	0.001nF ÷ 6mF	0.001nF ÷ 40mF
Basic accuracy:	±(1.9%rdg + 8dgt)	±(2.0%rdg + 8dgt)

ACCESSORIES	Code
Standard	
Couple of test leads	4413-2
Rubber protection holster	
Battery	
User manual	
Optional	
Carrying bag	B80
Windows software + serial cable *(only HT39)*	SW39

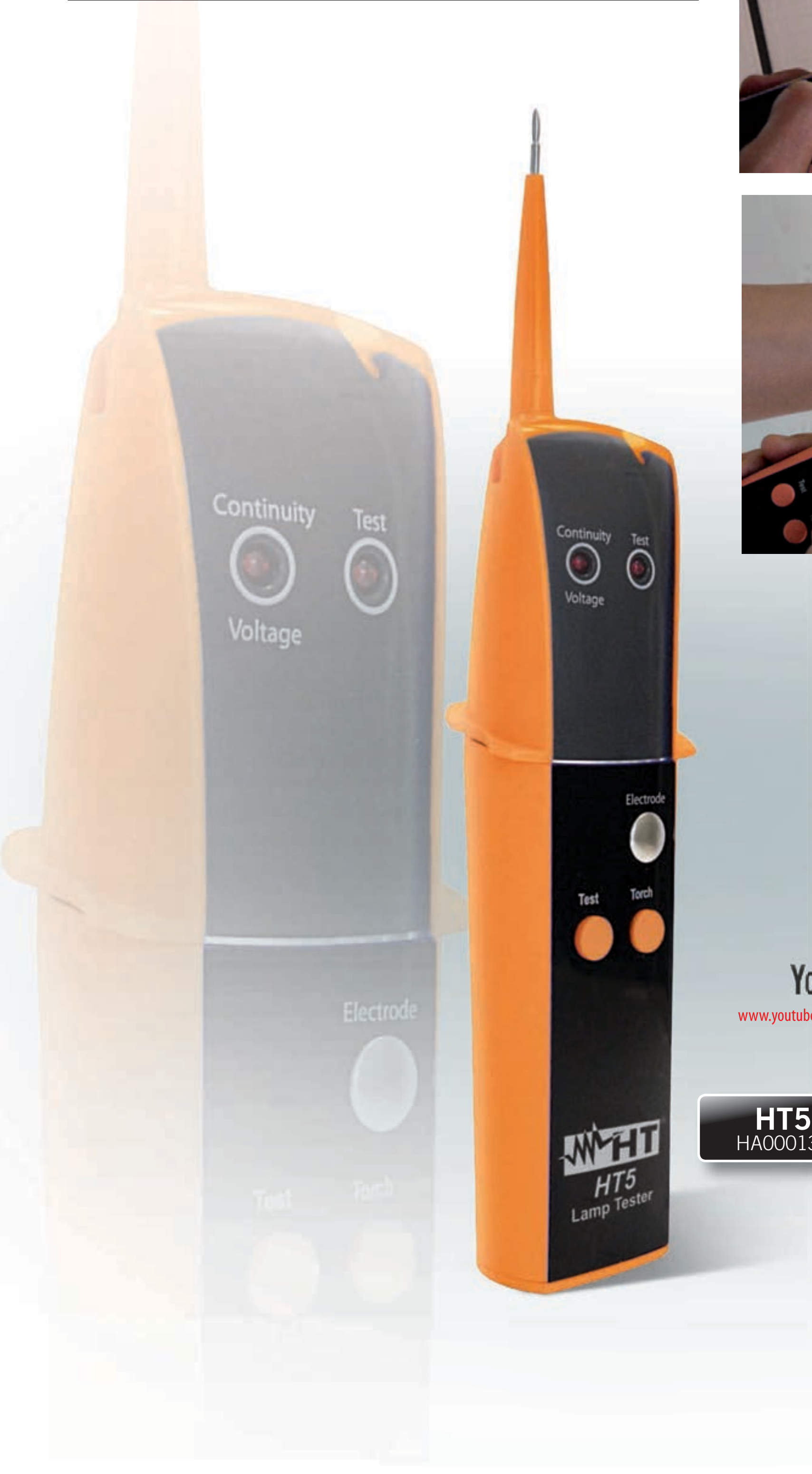
HT32
HR000032
HT39
HR000039
HT37
HR000037

HT5
PEN VOLTAGE DETECTOR WITH TEST ON HIGH/LOW PRESSURE GAS LAMPS

HT5 is a practical portable instrument which performs quick tests on low pressure gas lamps and high pressure sodium vapor lamps simply touching the lamp's surface. Other available features are AC voltage detector, continuity test and diode test.

FUNCTIONS

- Working test on neon and fluorescent lamps
- Working test on neon lamps with E27
- Working test on sodium vapour lamps
- Working test on halogen lamps
- AC voltage detector from 60 to 250V 50/60Hz
- Continuity test with buzzer
- Diode test
- LED and sound indications
- Built-in torch
- Safety: IEC/EN61010-1, CAT III 300V
- Power supply: 1x9V battery type IEC 6LR61
- Dimensions (LxWxH): 255x60x40mm
- Weight (including battery): 170g



ACCESSORIES

Standard
Battery
User manual

www.youtube.com/user/HTinstruments1

HT5
HA000138

HT6 - HT8 - HT9

PEN-TYPE DIGITAL MULTIMETER WITH BUILT-IN GAS-FILLED LAMP TESTER AND PHASE SEQUENCE/ CONFORMITY TESTER

Digital pen-type multimeters HT6, HT8 and HT9 provide daily use features. In addition to DC/AC voltage measurement and continuity test, HT6 also offers phase sequence/conformity detection feature. HT8 also adds phase sequence/conformity detection feature. HT9 also offers gas-filled lamp test. To overcome difficult pinpointing of the right cable within a frame on a switchboard under poor light conditions, a built-in white LED flashlight makes testing possible and easy even in dark environments. The slim and ergonomic design of HT6, HT8 and HT9 is highly appreciated by contracting electricians, field professionals, troubleshooters as well as any kind of user. Designed according to the requirements of field professionals, HT6, HT8 and HT9 are must-have troubleshooting tool.

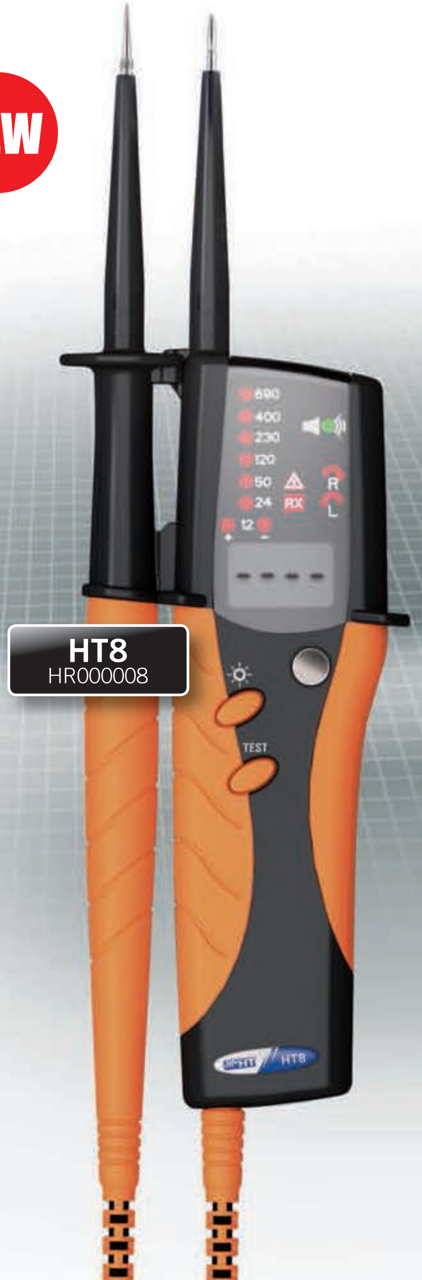
FUNCTIONS	HT6	HT8	HT9
LED and sound indication	•	•	•
LCD display		•	•
DC/ AC voltage up to 690V	•	•	•
Voltage detection with 1 wire	•	•	•
Continuity test with buzzer	•	•	•
Phase sequence indication	•	•	•
Test on gas-filled lamps			•
White LED flashlight	•	•	•
Compliance with IEC/EN61010-1	•	•	•
Power supply	2x1.5V type AAA alkaline batteries		
Measurement category	CAT IV 600V, CAT III 690V		
Pollution degree	2		
Mechanical protection	IP64 (IEC60529)		
Dimensions (L x W x H)	255 x 60 x 35mm		
Weight (with batteries)	170g		

ACCESSORIES
Standard
Couple of protective caps for test leads
Couple of adapters for 4mm lead tip
Batteries
User manual

NEW

690
400
230
120
50
24
12
CAT III / 690 V
CAT IV / 600 V
TEST

HT6
HR000006



HT8
HR000008

HT9
HR000009

HT710 - HT712
PEN DIGITAL MULTIMETERS

The HT710 and HT712 models are designed to achieve, so simple and immediate, basic features of a classic digital multimeter as a result of narrow and elongated structure capable of meeting the common demands of each installer. The HT710 performs AC/DC voltage, frequency, resistance and continuity test. HT712 model also allows the implementation of the measure of phase sequence indication and phase conformity with the innovative 1-wire method.

FUNCTIONS	HT710	HT712
TRMS measurements		•
DC/AC Voltage	•	•
AC Voltage with 1-wire method		•
AC/DC automatic signal detection		•
Resistance and continuity test	•	•
Frequency	•	•
Frequency with 1-wire method		•
Diode test	•	
Phase sequence indication with 1-wire		•
Phase conformity indication with 1-wire		•
Data HOLD	•	•
OK/FAIL led indications		•
Auto range	•	•
Relative measurement	•	
AutoPowerOFF	•	•

TECHNICAL SPECIFICATIONS	HT710	HT712
DC Voltage		
Measurement range:	0.1mV ÷ 1000V	0.1mV ÷ 1000V
Basic accuracy:	±(0.5%rdg + 2dgt)	±(0.5%rdg + 2dgt)
AC Voltage		
Measurement range:	1mV ÷ 600V	1.5mV ÷ 600V
Basic accuracy:	±(1.0%rdg + 2dgt)	±(1.5%rdg + 3dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 40MΩ	1Ω ÷ 1500Ω
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Buzzer:	<100Ω	<100Ω
Frequency with 2-wires		
Measurement range:	0.00Hz ÷9.999kHz	40Hz ÷69Hz
Basic accuracy:	±(0.8%rdg + 2dgt)	±(0.5%rdg + 1dgt)
Phase sequence indication with 1-wire *(only HT712)*		
Measurement range:		100V ÷ 600V

GENERAL SPECIFICATIONS	
Display:	LCD, 3 3/4 dgt, 4000 points
Power supply:	2x1.5V batteries type AAA
Battery life:	approx 170 hours
AutoPowerOFF:	after 5 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT IV 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	250x51x30mm
Weight (batteries included):	150g

ACCESSORIES	Code
Standard	
Red test leads	P711EU
Black test leads	P710EU
Carrying bag	B700
Batteries	
ISO9000 calibration certificate *(only HT712)*	
User manual	

www.youtube.com/user/HTinstruments1

HT710
HR000710
HT712
HR000712
IT PERFORMS THE PHASE SEQUENCE TEST ON THE CABLE SHEATH TOO

HT12
DIGITAL MULTIMETER WITH AC/DC OPEN CLAMP SENSOR

HT12 is a poket size digital multimeter with open clamp sensor ideal for the daily use. The fork current sensor and the test leads are welded to the instrument, making the use of HT12 extremely easy and convenient. HT12 is provided with 2x AAA 1,5V batteries and the user manual

Functions
AC current 0 ÷ 60A
DC current 0 ÷ 60A
AC voltage 0 ÷ 600V
DC voltage 0 ÷ 600V
Resistance 0÷ 34MΩ
Continuity test
Current frequency 0÷ 10kHz
Voltage frequency 0÷ 300kHz
AutoPowerOff to save the battery
Safety:
IEC/EN61010-1, CAT II 600V,
CAT III 300V
Pocket size and heavy duty design
Display: 3400 counts with analog bargraph
Size (LxWxH): 128x87x21mm
Weight: 210g

HT12
HR000012

HT603
POCKET DIGITAL MULTIMETER

HT603 is a digital multimeter, extremely compact and friendly in use. It is provided with carrying bag and test leads. The instrument carries out measurements of AC/DC voltage, resistance, continuity test, capacitance, frequency, duty cycle and diode test.

Standard accessories
Test leads + batteries + user manual

Functions
AC/DC voltage up to 600V
Resistance up to 40MΩ
Continuity test
Frequency
Duty cycle
Capacitance
Diode test
Data HOLD
Range Automatic/Manual
Auto Power OFF after 30 minutes
Safety:
IEC/EN61010-1, CAT III 300V, CAT II 600V
Display: LCD, 4 digits, 5000 counts
Power supply: 2x1.5V battery type LR44
Dimensions (LxWxH): 112x56x12mm
Weight (batteries included): 115g

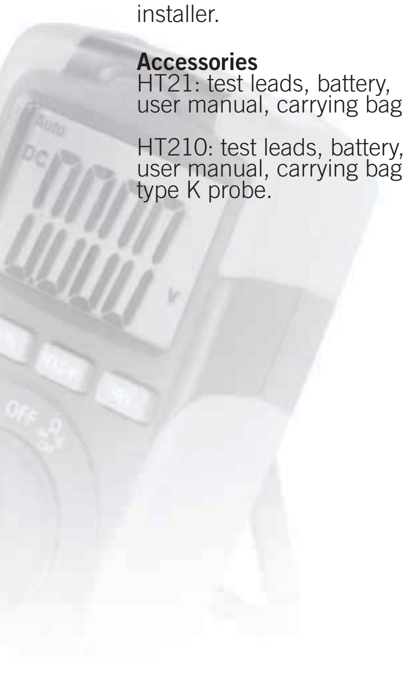
HT603
HR000603

HT21-HT210
HANDHELD DIGITAL MULTIMETERS

HT21 and HT210 handheld digital multimeters realised according to CAT III 600V headed to every electrical installer.

Accessories
HT21: test leads, battery, user manual, carrying bag

HT210: test leads, battery, user manual, carrying bag, type K probe.



FUNCTIONS	HT21	HT210
DC Voltage	•	•
AC Voltage	•	•
Resistance	•	•
Continuity test	•	•
Frequency	•	•
Capacitance	•	•
Diode test	•	•
Duty cycle (%)	•	•
Temperature with K probe		•
Backlight	•	•
Data HOLD	•	•
Relative measurements	•	•
Safety IEC/EN61010-1	•	•
Dimensions (LxWxH):	70x144x40	138x68x37
Weight	280g	210g

HT210
HR000210
HT21
HR000021

HT14N
ANALOG MULTIMETER

HT14N is a analog multimeter for AC/DC voltage up to 500V, DC current up to 100mA, resistance and battery test. HT14N is provided with test leads, battery, rubber holster and user manual.

Functions
DC voltage with 2.5, 25, 250, 500V scales
AC voltage with 25, 250, 500V scales
DC current with 1, 10, 100mA scales
Resistance with Rx10, Rx100, Rx1000 scales
1.5V and 9V test batteries
Safety: IEC/EN61010-1, CAT II 300V
Power supply: 1x1.5V battery type AA LR06
Size (LxWxH): 145x80x45mm
Weight (included battery): 25g

HT14N
HR000114

HT20
PEN VOLTAGE DETECTOR WITH WHITE LED TORCH

The HT20 pen voltage detector permits to quickly verify the presence of AC voltage on any type of electrical installations with and without direct contact. A red LED light on and a beeper detect the presence of voltage. HT20 is provided with batteries and user manual.

Functions
AC voltage range: 100V ÷ 1000V to ground
Frequency range: 50/60Hz
Red LED and buzzer for voltage detection
White LED torch with ON/OFF key
Practical pen clip
Safety: IEC/EN61010-1, CAT IV 1000V
Pollution degree: 2
Power supply:
2x1.5V batteries type AAA IECLR03
Size (LxWxH): 160 x 26 x 20mm
Weight (with batteries): 48g

HT20
HR000296

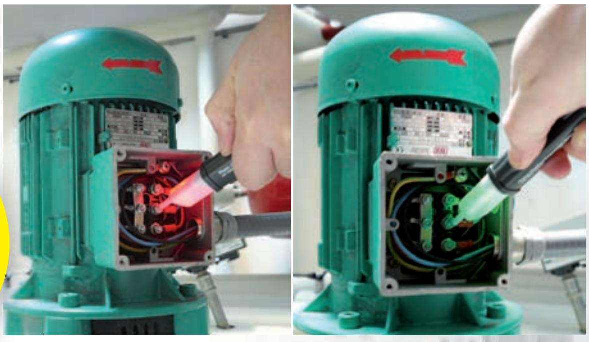
HT70
PEN PHASE SEQUENCE AND CONFORMITY INDICATOR

HT70 verifies the presence of AC voltage with and without direct contact and performs phase sequence and conformity test on three phase plants. HT70 is provided with batteries and user manual.

Functions
AC voltage range: 100V ÷ 1000V to ground
Frequency range: 50/60Hz
LED red/green + buzzer for indication of test
Pocket clip
Safety: IEC/EN61010-1, CAT IV 1000V
Pollution degree: 2
Power supply: 2x1.5V batteries type AAA IECLR03
Battery life: >9000 tests
Size (LxWxH): 160 x 26 x 20mm
Weight (included batteries): 48g

Accessories
Batteries + user manual

HT70
IT PERFORMS THE PHASE SEQUENCE TEST ON THE CABLE SHEATH TOO



Incorrect phase sequence *Correct phase sequence*

PATENTED
HT70
Phase checker/Sequence detector

HT70
HR000070

www.youtube.com/user/HTinstruments1

HT82
PHASE SEQUENCE INDICATOR

HT82 model is a digital portable meter to perform the phase sequence indication with 3-wire method on standard three phase system. The meter shows the “R” indication in positive test and “L” indication in the opposite case. HT82 is provided with 3 cables, 3 alligator clips, carrying bag and user manual.

Functions
AC voltage range from 40 to 690V
Frequency range: from 15Hz to 400Hz
“R” and “L” indications at display
LCD custom display
Protection holster
Safety: IEC/EN61010-1, CAT III 600V
Power supply: directly from network
Size (LxWxH): 130x69x22mm
Weight: 130g

HT 82
L1L2L3
R

HT82
HR000156

AMPEROMETRIC CLAMPS

AC CLAMPS

Model	HT4010	HT4011	HT4012	HT4014	HT9012	HT9014
Current range	600A	400A	400A	400A	600A	600A
TRMS measurement						•
LCD resolution (points)	2000	4000	2000	2000	2000	6000
DC Voltage	•	•	•	•	•	•
AC Voltage	•	•	•	•	•	•
DC Current						
AC Current	•	•	•	•	•	•
AC+DC Current						
Inrush current						
AC voltage detector	•	•			•	•
Resistance	•	•	•	•	•	•
Continuity test	•	•	•	•	•	•
Frequency		•		•		•
Leakage current						
Diode test	•	•	•	•	•	•
Duty Cycle		•				•
Capacitance		•				•
Temperature with type K probe		•				•
Phase sequence						
Phase conformity						
Active power						
Active/reactive/apparent power						
Power factor (cosφ)						
Energy						
Voltage/current harmonics up to 25th order						
Total Harmonic Distortion (THD%)						
Category of measurement	CAT III 600V	CAT III 600V	CAT III 600V	CAT III 600V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V
Bargraph				•		•
Backlight	•			•	•	•
Autorange			•	•	•	•
Autopoweroff	•	•	•	•	•	•
PEAK function						•
Data HOLD function	•	•	•	•	•	•
MAX/MIN function				•	•(MAX)	•
AVG (Average) function						
Relative measurement		•				
Low-pass filter						
Analoghe output						
Maximum diameter of cable	30mm	30mm	30mm	30mm	30mm	30mm
Dimensions (LxWxH) (mm)	197x70x40	200x66x37	205x64x39	205x64x39	210x75x45	210x75x45
Weight	180g	205g	280g	280g	400g	400g
Page	70	69	67	67	65	65

	AC/DC CLAMPS		LEAKAGE		POWER/HARMONIC CLAMPS		
HT9019	**HT9015**	**HT9021**	**HT77N**	**HT78**	**HT4020**	**HT4022**	**HT9022**
1000A	600A	1000A	100A	3000A	400A	400A	1000A
•	•	•	•	•	•	•	•
6000	6000	6000	6000	3200	10000	10000	128 x128pxl
•	•	•			•	•	•
•	•	•			•	•	•
	•	•					•
•	•	•	•	•	•	•	•
							•
							•
•	•	•			•	•	•
•	•	•			•	•	•
•	•	•			•	•	•
	•	•			•	•	•
			•	•			
	•	•					
	•						
	•	•					
	•	•					
					•	•	•
					•	•	•
					•	•	•(AC/DC)
					•	•	•
					•	•	•
					•	•	•
						•	•
						•	•
CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT IV 600V CAT III 1000V	CAT III 300V	CAT II 600V CAT III 300V	CAT III 600V	CAT III 600V	CAT IV 600V CAT III 1000V
•	•	•	•	•	•	•	
•	•	•	•		•	•	•
•	•	•	•		•	•	•
•	•	•	•	•	•	•	•
•	•	•	•		•	•	
•	•	•	•	•	•	•	•
•	•	•			•	•	•
					•	•	
	•	•					
			•	•			
				•			
45mm	30mm	45mm	40mm	108mm	30mm	30mm	45mm
252x88x44	210x75x45	252x88x44	202x75x42	341x194x52	205x64x39	205x64x39	252x88x44
400g	400g	420g	265g	1,9Kg	280g	280g	420g
64	63	63	68	68	66	66	62

HT9022
CLAMP-ON POWER QUALITY ANALYZER WITH BLUETOOTH CONNECTION

HT9022 is a combination of a power quality analyzer, a phase sequence/conformity detector, a clamp meter and a voltage detector in one single handy device. The advanced design of HT9022 ensures reliable and accurate measurements under a wide range of operating conditions. HT9022 is the ideal instrument for troubleshooting power quality problems, calculating power factor correctors, recording energy consumption, recording DC power, etc. Unlike the data loggers that take snapshots of the electrical parameters in regular intervals, losing what happens between an interval and the next, HT9022 continuously records all electrical parameters as a true power quality analyzer. The internal memory enables long-term recording for further download to (and analysis at) a PC, a PDA or a smartphone. HT9022 is flexible and portable to grant the user the most reliable measurements with an easy-to-use interface.

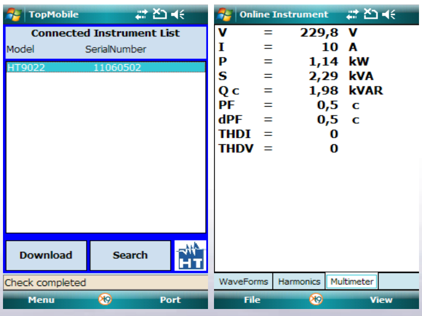
FUNCTIONS

- Measuring/recording of DC and AC+DC TRMS voltage
- Measuring/recording of DC and AC+DC TRMS current
- Phase sequence and conformity
- Measuring/recording of active, reactive and apparent power, power factor in single-phase and balanced three-phase systems
- Measuring/recording of active, reactive and apparent energy in single-phase and balanced three-phase systems
- Measuring/recording V / I harmonics up to the 25th order and THD%
- Measuring/recording of DC power
- Measuring/recording of current and voltage frequency
- Resistance measurement and continuity test with buzzer
- Inrush current
- Non-contact AC voltage detection with built-in sensor
- MAX/MIN/CREST
- Bluetooth connection

GENERAL SPECIFICATIONS

Display:	Dot matrix 128x128 with backlight
Power supply:	2x1,5V batteries AAA
Battery life:	>50h
Internal memory:	2Mb
PC interface:	Bluetooth
Safety:	IEC / EN61010-1, IEC / EN61010-2 – 032
Measurement category:	CAT IV 600V to the ground, max 1000V between the inputs
Insulation:	double insulation
Pollution degree:	2
Max diameter of the cable:	45mm
Dimensions (LxWxH):	252x88x44mm
Weight (batteries included):	420g

ACCESSORIES	Code
Standard	
Couple of test leads	YAAMK0000HT0
Couple of alligator clips	YAAMK0001HT0
Carrying bag	YABRS0000NN0
Batteries	
ISO9000 calibration certificate	
User manual	
Quick reference guide	
Wndows software	TOPVIEWS
Win Mobile equipped PDAs and smartphones software	TOPMOBILE



Connected Instrument List

Model	SerialNumber
HT9022	11060502

Check completed

V = 229,8 V
I = 10 A
P = 1,14 kW
S = 2,29 kVA
Q c = 1,98 kVAR
PF = 0,5 c
dPF = 0,5 c
THDI = 0
THDV = 0

Screenshot of Win Mobile software

Connecting the instrument

HT
HT9022
OFF
Setting
F1
F2
F3
F4
Mod
Par
Sys
Fnc
AC 50.0Hz
4.567 kW
-0.043 kVAr
4.567 kVA
AC+DC TRMS Clamp Meter
COM

With
BLUETOOTH

WaveForms
Harmonics
Multimeter
File
View

Win Mobile real-time viewing

www.youtube.com/user/HTinstruments1

HT9022
HP009022

HT9021 - HT9015

AMPEROMETRIC CLAMPS AC/DC 1000A AND 600A TRMS CAT IV

HT9021 and HT9015 have been designed for measuring AC/DC current respectively up to 1000A and up to 600A in TRMS reaching CAT IV 600V in compliance with standard IEC/EN61010-1. The clamps are provided with a wide display with 6000 reading dots, backlighting and analog bargraph to facilitate reading also in poorly lit environments. These models also carry out resistance, frequency, capacitance, temperature with type K probes and duty cycle measurements.

FUNCTIONS

- Measurements in TRMS
- AC/DC current up to 1000A *(HT9021)*
- AC/DC current up to 600A *(HT9015)*
- Resistance and continuity test
- “Voltsense” for detecting AC/DC voltage
- Frequency
- Capacitance
- Temperature with K-type probe
- Diode test
- Duty Cycle
- Autorange
- Data HOLD
- MAX/MIN
- Peak current (<10ms)
- Relative measurement
- Bargraph
- Backlight
- AutoPowerOFF

HT9021
HP009021

HT9015
HP009015

GENERAL SPECIFICATIONS

Display:	LCD, 4 digits, 6000 dots
Conversion type:	TRMS
Power supply:	1x9V battery type IEC 6F22
AutoPowerOff:	after 15 min of idleness
Clamp inner diameter:	45mm *(HT9021)* 30mm *(HT9015)*
Safety:	IEC/EN61010-1
Insulation:	double insulation
Pollution degreel:	2
Measurement category:	CAT IV 600V - CAT III 1000V
Dimensions (LxWxH):	252x88x44mm *(HT9021)* 210x75x45mm *(HT9015)*
Weight (batteries included):	420g *(HT9021)* 400g *(HT9015)*

TECHNICAL SPECIFICATIONS

DC voltage (Autorange)	
Measuring range:	0.01mV ÷ 1000V
Basic accuracy:	±(1.0%reading + 3digits)
AC TRMS voltage (Autorange)	
Measuring range:	0.001V ÷ 1000V
Bandwidth:	50Hz ÷ 400Hz
Basic accuracy:	±(1.0%reading + 4digits)
DC current	
Measuring range:	0.01A ÷ 1000A *(HT9021)* *0.01A ÷ 600A (HT9015)*
Basic accuracy:	±(2.0%reading + 8digits)
AC TRMS current	
Measuring range:	0.01A ÷ 1000A *(HT9021)* 0.01A ÷ 600A *(HT9015)*
Bandwidth:	50Hz ÷ 400Hz
Basic accuracy:	±(2.8%reading + 8digits)
Resistance and continuity test	
Measuring range:	0.1Ω ÷ 60MΩ
Basic accuracy:	±(1.0%reading + 5digits)
Continuity buzzer:	<50Ω
Frequency with clamp and probes	
Measuring range:	0.01Hz÷ 60kHz
Basic accuracy:	±(1.0%reading + 5digits)
Capacitance	
Measuring range:	0.01nF ÷ 4mF
Basic accuracy:	±(2.5%reading + 5digits)
Temperature with K-type probe	
Measuring range:	-20°C ÷ 760°C; -4°F ÷ 1400°F
Basic accuracy:	±(2.0%reading + 3°C); ±(2.0%reading + 6°F)

ACCESSORIES

Standard
Pair of probes
K-type wire probe + adapter
Battery
Transport bag
User manual
Optional
K-type thermocopules

HT9019

PROFESSIONAL AMPEROMETRIC CLAMP AC 1000A TRMS CAT IV

The professional amperometric clamp HT9019 has been designed for measuring AC current up to 1000A in TRMS for reaching CAT IV 600V in compliance with standard IEC/EN61010-1. The clamp is provided with a wide display with 6000 reading dots, backlighting and analogue bargraph to facilitate reading also in poorly lit environments. Clamp HT9019 has an auto power off function in order to preserve its internal battery.

FUNCTIONS

- Measurements in TRMS
- AC current up to 1000A
- AC/DC voltage up to 1000V
- Resistance and continuity test
- “Voltsense” for detecting AC/DC voltage
- Autorange
- Data HOLD
- MAX/MIN
- Peak current (<10ms)
- Bargraph
- Backlight
- AutoPowerOff

GENERAL SPECIFICATIONS

Display:	LCD, 4 digits, 6000 dots
Conversion type:	TRMS
Power supply:	1x9V battery type IEC 6F22
AutoPowerOff:	after 15 min of idleness
Clamp inner diameter:	45mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V – CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
Dimensions (LxWxH):	252x88x44mm
Weight (batteries included):	420g

TECHNICAL SPECIFICATIONS

DC voltage (Autorange)	
Measuring range:	0.01mV ÷ 1000V
Basic accuracy:	±(1.0%reading + 3digits)
AC TRMS voltage (Autorange)	
Measuring range:	0.001V ÷ 1000V
Bandwidth:	50Hz ÷ 400Hz
Basic accuracy:	±(1.0%reading + 4digits)
AC TRMS current	
Measuring range:	0.01A ÷ 1000A
Bandwidth:	50Hz ÷ 400Hz
Basic accuracy:	±(2.8%reading + 8digits)
Resistance and continuity test	
Measuring range:	0.1Ω ÷ 60MΩ
Basic accuracy:	±(1.0%rdg + 5dgt)
Continuity buzzer:	<50Ω

ACCESSORIES

Standard
Pair of probes
Battery
Transport bag
User manual

HT9019
HP009019

HT
HT9019
1000A~
600A~
60A~
OFF
MODE
MAX MIN
REL
PEAK
AUTO
AC
0.003
AC TRMS Clamp Meter
COM
VΩ

HT9012 - HT9014

PROFESSIONAL AMPEROMETRIC CLAMPS AC 600A IN CAT IV

The professional amperometric clamps HT9012 and HT9014 have been designed for measuring AC current up to 600A for reaching respectively CAT IV 600V and CAT III 1000V in compliance with standard IEC/EN61010-1. The clamps are provided with a wide display and with an auto power off function in order to preserve the internal battery. Model HT9014, in TRMS and provided with a 6000-dot display allows carrying out tests with an optimal resolution, taking advantage of a wide measuring range.

FUNCTIONS	HT9012	HT9014
Measurements in TRMS		•
DC/AC voltage	•	•
AC Current	•	•
Resistance / continuity test	•	•
Frequency		•
“Voltsense” sensor	•	•
Diode test	•	•
Temperature with K-type probe		•
Capacitance		•
Duty Cycle		•
Autorange		•
Data HOLD	•	•
MAX/MIN	(MAX only)	•
Peak current (<10ms)		•
Relative measurement		•
Bargraph		•
Backlight	•	•
AutoPowerOff	•	•

HT9014
HP009014

HT
HT9014
600A~
60A~
Temp
OFF
0003
AC TRMS Clamp Meter
MODE
MAX/MIN
Hz%
COM
CAP Temp

HT
HT9012
200A~
600A~
20A~
2A~
OFF
212
AC Clamp Meter
MODE
RANGE
MAX
COM

HT9012
HP009012

GENERAL SPECIFICATIONS	
Display:	LCD, 3 ½ digits, 2000 dots *(HT9012)* LCD, 4 digits, 6000 dots *(HT9014)*
Conversion type:	average value *(HT9012)* TRMS *(HT9014)*
Power supply:	1x9V battery type IEC F22
AutoPowerOff:	after 15 min of idleness
Clamp inner diameter:	30mm
Safety:	IEC/EN61010-1
Measurement category:	CAT IV 600V - CAT III 1000V
Insulation:	double insulation
Pollution degree:	2
Dimensions (LxWxH):	210x75x45mm
Weight (batteries included):	400g

TECHNICAL SPECIFICATIONS	HT9012	HT9014
DC Voltage		
Measurement range:	0.1mV ÷ 1000V	0.01mV ÷ 1000V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC Voltage		
Measurement range:	0.1mV ÷ 1000V	1mV ÷ 1000V
Bandwidth:	50 ÷ 60Hz	50 ÷ 400Hz
Basic accuracy:	±(1.0%rdg + 4dgt)	±(1.0%rdg + 10dgt)
AC Current		
Measurement range:	1mA ÷ 600A	0.01A ÷ 600A
Bandwidth:	50 ÷ 60Hz	50 ÷ 60Hz
Basic accuracy:	±(2.5%rdg + 4dgt)	±(2.8%rdg + 8dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 20.00MΩ	0.1Ω ÷ 60.00MΩ
Basic accuracy:	±(1.0%rdg + 5dgt)	±(1.0%rdg + 5dgt)
Continuity buzzer:	<100Ω	<60Ω
Capacitance		
Measurement range:		0.01nF ÷4000μF
Basic accuracy:		±(2.5%rdg + 5dgt)
Temperature with K-type probe		
Measurement range:		-20°C ÷ 760°C; -4°F ÷ 1400°F
Basic accuracy:		±(2.0%rdg + 3°C); ±(2.0%rdg + 6°F)
Frequency with clamp and probes		
Measurement range:		0.01Hz ÷ 60.00kHz
Basic accuracy:		±(1.0%rdg + 5dgt)

ACCESSORIES
Standard
Pair of probes
K-type wire probe + adapter *(HT9014)*
Battery
Transport bag
User manual
Optional
K-type thermocouples *(HT9014 only)*

HT4020 - HT4022

TRMS AMPEROMETRIC CLAMP 400A AC WITH POWER MEASUREMENT

The HT4020 and HT4022 professional clamp meters perform TRMS AC Current measurement up to 400A, AC/DC voltage, frequency, resistance, continuity test, active, reactive and apparent power, power factor (cosφ) and energy measurements on single phase and/or three-phase balanced systems more than the phase sequence indication with 1-wire method. The HT4022 also performs the absolute/percentage voltage/current harmonics with the calculation of THD%. Each meter is designed in compliance with IEC/EN61010-1 in CAT III 600V and is an ideal solution to troubleshoot typical industrial equipments such as non-linear motors controlled frequency, networks of PC, etc.

FUNCTIONS	HT4020	HT4022
DC/AC TRMS voltage	•	•
AC TRMS current	•	•
Resistance and continuity test	•	•
Frequency with test leads and clamp	•	•
Active, reactive, apparent power	•	•
Active, reactive, apparent energy	•	•
Power factor (cosφ)	•	•
V/ I harmonics up to 25th order and THD%		•
Phase sequence indication with 1-wire	•	•
Autorange	•	•
Data HOLD	•	•
MAX/MIN/AVG/PEAK	•	•
Backlight	•	•
AutoPowerOFF	•	•

TECHNICAL SPECIFICATIONS	HT4020	HT4022
DC Voltage		
Measurement range:	0.1V ÷ 600V	0.1V ÷ 600V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC TRMS Voltage		
Measurement range:	1.6V ÷ 600V	1.6V ÷ 600V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC TRMS Current		
Measurement range:	0.1A ÷ 400A	0.1A ÷ 400A
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC active, reactive, apparent power [kW, kVAR, kVA]		
Measurement range:	0.01 ÷ 1000	0.01 ÷ 1000
Basic accuracy:	±(3.5%rdg + 3dgt)	±(3.5%rdg + 3dgt)
Power factor cosφ		
Measurement range:	0.20 ÷ 1.00	0.20 ÷ 1.00
Basic accuracy:	±3°	±3°
Voltage/current harmonics		
Harmonic order:		1 ÷ 25
Basic accuracy:		±(10%rdg + 5dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 2kΩ	0.1Ω ÷ 2kΩ
Basic accuracy:	±(1.0%rdg + 5dgt)	±(1.0%rdg + 5dgt)
Buzzer	<40Ω	<40Ω
Frequency with clamp and test leads		
Measurement range:	40Hz ÷ 400Hz	40Hz ÷ 400Hz
Basic accuracy:	±(1.5%rdg + 1dgt)	±(1.5%rdg + 1dgt)
Phase sequence indication with 1-wire method		
Voltage range:	50V ÷ 600V	50V ÷ 600V
Frequency range:	40Hz ÷ 69Hz	40Hz ÷ 69Hz

GENERAL SPECIFICATIONS	
Display:	LCD 4 dgt, 10000 points
Conversion:	TRMS, 64 samples in 20ms
Power supply:	2x1.5V batteries type AAA LR03
AutoPowerOFF:	after 5 min of idleness
Safety:	IEC/EN 61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	30mm
Dimensions (LxWxH):	205x64x39mm
Weight (included batteries):	280g

ACCESSORIES	Code
Standard	
Couple of test leads	4413-2
Couple of alligator clips	
Carrying bag	B80
Rubber clamp protection	
Batteries	
ISO9000 calibration certificate	
User manual	

HT4020
HP004020
HT4022
HP004022

HT4012 - HT4014

AMPEROMETRIC CLAMPS AC 400A IN AUTORANGE

The HT4012 and HT4014 amperometric clamps run mainly AC current measurements up to 400A (HT4014 in total Autorange), AC/DC voltage, resistance and continuity test. Thanks to the practical and patented rubber protection which covers the clamp is possible to enter a tip into the slot free and, therefore, operating with one hand, is ensured simplicity and speed during measurements. The models are compliance with IEC/EN61010-1 CAT III 600V and are ideal for measurements in both civil and industrial environments

FUNCTIONS	HT4012	HT4014
AC/DC voltage	•	•
AC current	•	•
Resistance and continuity test	•	•
Frequency		•
Diode test	•	•
Data HOLD	•	•
MAX/MIN		•
Selection of manual range	•	
Backlight		•
Bargraph		•
AutoPowerOFF	•	•

TECHNICAL SPECIFICATIONS	HT4012	HT4014
DC Voltage		
Measurement range:	1mV ÷ 600V	1mV ÷ 600V
Basic accuracy:	±(0.8%rdg + 2dgt)	±(0.8%rdg + 2dgt)
AC Voltage		
Measurement range:	1mV ÷ 600V	0.1mV ÷ 600V
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
AC Current		
Measurement range:	0.1A ÷ 400A	0.1A ÷ 400A
Basic accuracy:	±(2.0%rdg + 10dgt)	±(2.0%rdg + 10dgt)
Resistance and continuity test		
Measurement range:	0.1Ω ÷ 20MΩ	0.1Ω ÷ 40MΩ
Basic accuracy:	±(1.0%rdg + 3dgt)	±(1.0%rdg + 3dgt)
Buzzer:	<25Ω	<40Ω
Frequency with test leads		
Measurement range:		1Hz ÷ 400kHz
Basic accuracy:		±(8%rdg + 3dgt)

HT4012
HP004012
HT4014
HP004014

GENERAL SPECIFICATIONS	
Display:	LCD 3 3/4 dgt, 2000 points *(HT4012)* LCD 3 3/4 dgt, 4000 points *(HT4014)*
Conversion :	mean value
Power supply:	2x1.5V batteries type AAA LR03
AutoPowerOFF:	after 10 min of idleness *(HT4012)* after 30 min of idleness *(HT4014)*
Safety	IEC/EN 61010-1
Category of measurement:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Max diameter of clamped cable:	30mm
Dimensions (LxWxH):	205x64x39mm
Weight (included batteries)	280g

ACCESSORIES	Code
Standard	
Couple of test leads	4413-2
Carrying bag	B80
Rubber clamp protection	
Batteries	
User manual	

HT77N - HT78
AC AMPEROMETRIC CLAMPS FOR MEASUREMENT OF LEAKAGE CURRENTS

HT77N and HT78 are amperometric clamps designed for accurate measurements of very low values of AC currents and, therefore, they are mainly used in searching and determining leakage currents which typically cause the tripping of differential devices in civil and industrial electric systems. These models are also provided with a built-in low-pass filter to eliminate the harmonic components and with an analogue output with DC voltage for connection of any external data loggers (HT78 only). HT78, thanks to an internal, big-sized clamp (108mm), allows easy measurement of leakage currents even on (single- phase and/or three-phase, 4-wire) installations with big cross-section cables.

FUNCTIONS	HT77N	HT78
Measurement in TRMS	•	•
AC Current	•100A	•3000A
Low-pass filter	• (100Hz)	• (150Hz)
Analogue DC output		•
Data HOLD	•	•
Auto HOLD	•	
Peak HOLD	•	
Autorange	•	
Bargraph	•	
Backlight	•	
Auto Power OFF	•	•

TECHNICAL SPECIFICATIONS	HT77N	HT78
AC TRMS current		
Measuring range:	0.001mA ÷ 100A	0.1mA ÷ 3000A
Resolution:	0.001mA ÷ 0.1A	0.1mA ÷ 1A
Basic accuracy:	±(1.0%rdg + 8dgt)	±(1.5%rdg + 8dgt)
Protection:	max 120Arms	3000Arms
Analogue DC output *(HT78 only)*		
Conversion ratio:		1mV/1mA ÷ 1mV/10A
Full scale for each conversion ratio:		300mV
Basic accuracy:		±(1.5%FS)

GENERAL SPECIFICATIONS	
Display:	LCD, 4 digits, 6000 dots *(HT77N)* LCD, 4 digits, 3200 dots *(HT78)*
Conversion type:	TRMS
Power supply:	2x1.5V battery type AAA LR03
AutoPowerOFF:	after 20 minutes of idleness *(HT77N)* after 10 minutes of idleness *(HT78)*
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 300V *(HT77N)* CAT II 600V, CAT III 300V *(HT78)*
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Clamp inner diameter:	40mm *(HT77)*, 108mm *(HT78)*
Dimensions (LxWxH):	202x75x42mm *(HT77N)* 341x194x52mm *(HT78)*
Weight (with batteries):	265g *(HT77N)* 1.9kg *(HT78)*

ACCESSORIES
Standard
Carrying bag
Batteries
Wrist belt *(HT78 only)*
User manual

HT
HT77N
Data
Auto HOLD
Peak
Wide/50-60Hz
Compare
Range
TRUE RMS LEAKAGE CLAMP
mA
0.004
Auto Backlit

HT77N
HP00077N

108 mm
SUPERWIDE
JAWS!
3000A
300A
30A
3A
300mA
OFF
HT
OFF ON
FILTER
D-HOLD
004
HT78
LEAKAGE CLAMP

HT78
HP000078

HT4011

AC 400A AMPEROMETRIC CLAMP

Clamp-on meter HT4011 can measure AC current up to 400A, AC/DC voltage, resistance, continuity test, capacitance, temperature with type K probe, frequency, duty cycle and diode test. The instrument complies with IEC/EN61010-1 under CAT III 600V and is suitable for measurements both in civil and industrial site.

FUNCTIONS

- AC current up to 400A
- AC/DC voltage up to 600V
- Non-contact AC voltage detection
- Resistance and continuity test
- Diode test
- Frequency with test leads
- Capacitance
- Temperature with type K probe
- Duty cycle
- Data HOLD
- Relative measurement
- Auto Power OFF

GENERAL SPECIFICATIONS

Display:	LCD, 4 digits, 4000 counts
Conversion type:	mean value
Power supply:	2x1.5V batteries type AAA
Auto Power OFF:	after 30 min of idleness
Clamp inner diameter:	30mm
Safety:	IEC/EN61010-1
Measurement category::	CAT III 600V
Insulation	double insulation
Pollution degree	2
Max altitude	2000m
Dimensions (LxWxH)	200x66x37mm
Weight (batteries included)	205g

NEW
CAT III
Non-Contact Voltage Detector
40A
400A
Temp °F
Temp °C
CAP
Ω
V
Hz%
OFF
HOLD
MODE
Hz%
REL
AC Clamp Meter
HT
HT4011
COM
V Ω
CAP Hz %
Temp

HT4011
HP004011

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV÷0.1V
Basic accuracy:	±(0.8%rdg+2dgt)
Protection:	600VDC/ACrms
AC Voltage	
Measurement range:	1mV ÷ 600V
Resolution:	1mV÷1V
Frequency range:	50 ÷ 400Hz
Basic accuracy:	±(1.8%rdg+ 8dgt)
Protection:	600VDC/ACrms
AC Current	
Measurement range:	0.01A ÷ 400A
Resolution:	0.01A ÷ 0.1A
Basic accuracy:	±(2.5%rdg+8dgt)
Protection:	400Arms
Resistance and continuity test with buzzer	
Measurement range:	0.1Ω ÷ 40MΩ
Resolution:	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(1.0%rdg+4dgt)
Buzzer:	<30Ω
Capacitance	
Measurement range:	0.01nF ÷ 100μF
Resolution:	0.01nF ÷ 0.1μF
Basic accuracy:	±(3.0%rdg+5dgt)
Protection:	600VDC/ACrms
Frequency with test leads	
Measurement range:	10Hz ÷ 10kHz
Resolution:	0.01Hz ÷ 0.01kHz
Basic accuracy:	±(1.0%rdg+5dgt)
Protection:	600VDC/ACrms
Temperature with type K probe	
Measurement range:	-20°C ÷ 760°C
Resolution:	0.1°C ÷ 1°C
Basic accuracy:	±(3.0%rdg+5°C)
Protection:	250VDC/ACrms

ACCESSORIES

Standard

- Pair of test leads
- Adapter + K-type bead probe
- Batteries
- Transport bag
- User manual

Optional

- K-type thermocouples

HT4010
AC 600A AMPEROMETRIC CLAMP

Clamp-on meter HT4010 can measure AC current up to 600 A, AC/DC voltage, resistance, continuity test and diode test. The backlighted LCD permits easy reading even under critical conditions. The instrument complies with EN 61010-1 under CAT III 600V and is suitable for measurements both in civil and industrial sites.

FUNCTIONS

- AC current up to 600A
- AC/DC voltage up to 600V
- Non-contact AC voltage detection
- Resistance and continuity test
- Diode test
- Data HOLD
- MAX
- Backlight
- Auto Power OFF

GENERAL SPECIFICATIONS

Display:	LCD, 3 ½ digits, 2000 counts
Conversion type:	mean value
Power supply:	1x9V battery type IEC 6F22
AutoPowerOFF:	after 15 minutes of idleness
Clamp inner diameter:	30mm
Safety:	IEC/EN 61010-1
Measurement category:	CAT III 600V
Insulation:	double insulation
Pollution degree:	2
Max altitude:	2000m
Dimensions (LxWxH):	197x70x40mm
Weight (batteries included):	180g

TECHNICAL SPECIFICATIONS

DC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV÷1V
Basic accuracy:	±(1.5%rdg + 2dgt)
Protection:	600VDC/ACrms
AC Voltage	
Measurement range:	0.1mV ÷ 600V
Resolution:	0.1mV÷1V
Frequency range:	50 ÷ 60Hz
Basic accuracy:	±(1.8%rdg + 8dgt)
Protection:	600VDC/ACrms
AC Current	
Measurement range:	0.001A ÷ 600A
Resolution:	0.001A ÷ 0.1A
Frequency range:	50 ÷ 60Hz
Basic accuracy:	±(2.5%rdg + 4dgt)
Protection:	600Arms
Resistance and continuity test with buzzer	
Measurement range:	0.1Ω ÷ 20MΩ
Resolution:	0.1Ω ÷ 0.01MΩ
Basic accuracy:	±(1.0%rdg + 4dgt)
Buzzer:	<150Ω

ACCESSORIES	Code
Standard	
Pair of test leads	KIT4000A
Carrying bag	
Battery	
User manual	

600A~
200A~
20A~
2A~
Ω
V⎓
V~
OFF
HOLD
00.2
MODE
RANGE
MAX
HT
HT4010
AC CLAMP METER
COM
VΩ
CAT III 600V

HT4010
HP004010

HT-5000
PROFESSIONAL SYSTEM FOR FINDING GROUNDING CABLES AND PIPES

Civil engineering work is accelerated, earth-moving machines are used efficiently and the risk of accidents is minimised thanks to the HT-5000 meter. This unit is especially designed to know the position and the depth of underground pipes and cables or cabling plans in a very quick and easy way. The model is composed by a Transmitter and a Receiver and the principle used is the propagation of a electromagnetic field inside a object crossed by a signal generated with a direct coupling (finding energized or not energized objects with accessible parts) and inductive coupling (signal spread by transmitter by integrated antenna) for finding of not accessible parts (e.g: earth-moving areas). The tracing can be performed also in passive mode by the use of receiver only in order to locate cable or pipes crossed by 50/60Hz electrical current or radiofrequency signals. Both transmitter and receiver are designed with IP56 (protection by dust and water) for typical external “in field” environment and a wide number of optional accessories are available also for finding of non metal objects.

FUNCTIONS

- **TX5000 Transmitter**
- Inductive coupling with 33kHz signal by integrated antenna
- Direct coupling with 33kHz by external accessories
- Selectable transmitted power of signal
- Blinking or continuous signals
- Level battery indication
- **RX5000 Receiver**
- Passive mode without transmitter
- Active mode with transmitter
- Automatic measurement of depth
- Manual/Automatic sensitivity selection
- Display backlight
- Speaker with volume control
- Headphone jack for use in loud environment
- Floor cap for housing protection

ACCESSORIES

Standard

Transmitter TX5000
Receiver RX5000
Set of measurement cables with alligator clips
Metal probes for earth reference
Batteries for transmitter and receiver
Carrying bag
User manual

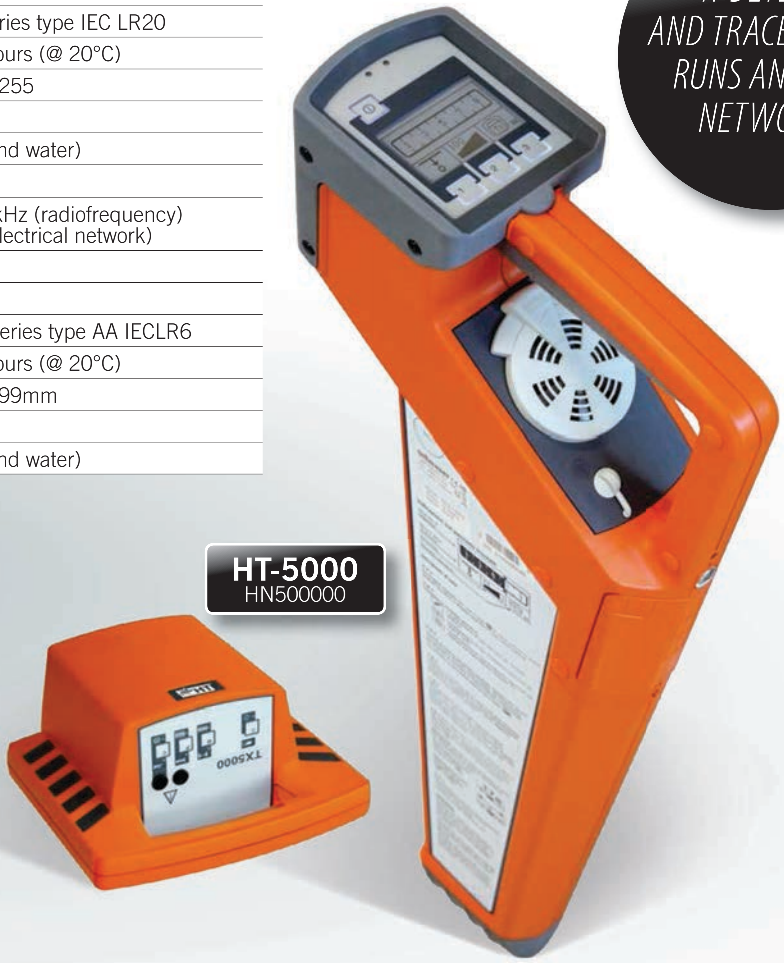
Optional

Clamp, 100mm diameter for inductive coupling
Set for connection to TV or phone cabling
Flexible probe for location of non metal object
Battery transmitter for location of non metal object
Nylon bag for receiver

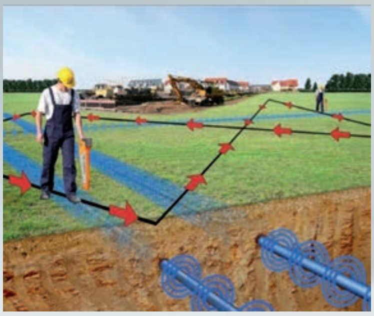
GENERAL SPECIFICATIONS

TX5000 Transmitter	
Transmitted power:	0.1W / 0.5W
Frequency of signal:	33kHz
Power supply	6x1.5V batteries type IEC LR20
Operating time:	approx 40 hours (@ 20°C)
Sizes (LxWxH) mm:	260 x 140 x 255
Weight (included batteries):	1.7kg
Mechanical protection:	IP56 (dust and water)
RX5000 Receiver	
Frequency range:	15kHz ÷ 23kHz (radiofrequency) 50 / 60Hz (electrical network)
Frequency with transmitter:	33kHz
Depth range:	0.3m ÷ 7m
Power supply:	10x1.5V batteries type AA IECLR6
Operating time:	approx 40 hours (@ 20°C)
Dimensions (LxWxH):	660 x 252 x 99mm
Weight (included batteries):	2.5kg
Mechanical protection:	IP56 (dust and water)

IT DETECTS AND TRACES CABLE RUNS AND PIPE NETWORKS



HT-5000
HN500000



Use of meter for tracing of metallic conductors/pipes on a site planned for construction (e.g. excavation work)

QUICKLAN6050 - QUICKLAN6055

PORTABLE INSTRUMENTS FOR VERIFYING LAN CABLES

The portable instruments QUICKLAN6050 and QUICKLAN6055 are capable of detecting and indicating on the display the presence of wrong connections on LAN cables (crossed, split, inverted, open, short-circuited pairs, etc.) both of UTP type (non-shielded) and of STP or FTP type (shielded). Model HT6050 also allows measuring the cable length and saving the test results in its internal memory. Each model comes with different remote units available, and is capable of interfacing itself with other (optional) units, in order to set up an efficient localization system of different points in a patch panel, by carrying out the tests very rapidly and with the aid of one operator only. HT6050 and HT6055 are the ideal instrument for all installers requiring simple and efficient instruments for carrying out preliminary checks and verifications on LAN installations with connectors of RJ45 type.

FUNCTIONS	HT6050	HT6055
Wiring cable mapping of LAN	•	•
Verification on RJ45 cables with twisted pairs of UTP, STP and FTP type	•	•
Verification on COAX cables	•	
Open pair errors	•	•
Short-circuited pair errors	•	•
Crossed pair errors	•	•
Inverted pair errors	•	•
Split pair errors	•	•
Generic errors (MISWIRE)		
Display indication of error type	•	•
Indication of test passed/failed	•	•
Remote unit detection	•(4)	•(8)
Measurement of cable length	•	
Cable length measuring range	1 ÷ 350m	
Internal memory for test result saving	•	
Memory locations	99	
Recall and deletion of saved data	•	
AutoPowerOFF	•	•
Low battery indication	•	•

GENERAL SPECIFICATIONS	HT6050	HT6055
Input connectors	RJ45, BNC	RJ45
Protection against voltage	(50V)	(30V)
Power supply (alkaline batteries)	6 x1.5V type AAA	1 x9V type 6F22
Size (LxWxH) mm	150x72x35	128x672x39
Weight (with batteries)	215g	165g

ACCESSORIES	Code
Standard	
Remote unit #1 *(only HT6050)*	
Remote unit #1 and #2 *(only HT6055)*	REM1, REM2
2 patch cables FTP RJ45-RJ45, 20cm *(only HT6050)*	
3 patch cables FTP RJ45-RJ45, 20cm *(only HT6055)*	YAMS0000000
Carrying bag	
User manual	
Batteries	
Optional	
Set of remote units #2, #3, #4 *(only HT6050)*	6050MARKER0204
Remote unit #3 + patch cable *(only HT6055)*	REM3
Remote unit #4 + patch cable *(only HT6055)*	REM4
Remote unit #5 + patch cable *(only HT6055)*	REM5
Remote unit #6 + patch cable *(only HT6055)*	REM6
Remote unit #7 + patch cable *(only HT6055)*	REM7
Remote unit #8 + patch cable *(only HT6055)*	REM8
Set of remote units from #3 ÷ #8 + patch cables *(only HT6055)*	REM38

LAN
CABLE VERIFIERS

HT
QuickLAN 6050
ID - 1 PASS
TEST
SET
LENGTH
WIRE MAP
HT
QUICKLAN 6055
LAN TESTER
UTP
STP

QUICKLAN6050
HV006050

QUICKLAN6055
HV006055

DM40 - iDM70
PROFESSIONAL DIGITAL LASER METERS

DM40 and iDM70 are designed to measure distances between two points in a simple, fast and efficient way thanks to the integrated laser pointer and small size which make it a completely portable tool for use in every situation and in any application (buildings, electricity sector , hobbies, etc...) where it may be necessary to perform a measure of linear length. The tool also allows to perform calculations of areas and volumes and the indirect measure of heights by using the principle of mathematical theorem of Pythagoras. iDM70 is also equipped with a small bubble level air for a perfect alignment of objects in the test and a dedicated APP can be downloaded on both iOS and Android devices in way to can use the result of the measurements on each kind of practical situations. The management of simple operations with the internal memory (sums and subtractions) and a backlight display complete the features available for the instrument.

FUNCTIONS	DM40	iDM70
Resolution of measurement: 0.001m	•(up to 40m)	•(up to 70m)
Areas and Volumes calculation	•	•
Heights measure with Pythagoras method	•	•
Continuous (dynamic) measurements	•	•
Laser pointer activation on measurements	•	•
Setting of measurement reference	•	•
Selection of m or ft measurement units	•	•
Management operation with internal memory	•	•
Hole for use of tripod	•	•
High contrast backlight multi display	•(3 LCD)	•(4 LCD)
Integrated bubble level air		•
Tilt angle measurement		•
Timer on measurement		•
Bluetooth connection		•
iOP/Android HTLaserMeter APP for applications		•
Buzzer activation on keys		•
AutoPowerOFF	•	•

GENERAL SPECIFICATIONS	
Display:	Triple LCD, 5dgt with backlight *(DM40)* Quadruple LCD, 5 digits with backlight *(iDM70)*
Power supply:	2x1.5V alkaline type AAA *(DM40)* 2x1.5V alkaline type AA *(iDM70)*
Battery life:	up to 5000 test *(DM40)* up to 8000 test *(iDM70)*
Laser pointer:	650nm, Class II, <1mW
Working temperature:	0°C ÷ 40°C
Auto Power OFF:	30s (laser), 180s (instrument)
Mechanical protection:	IP54
Reference standards:	EMC, IEC/EN60825-1
Dimensions (LxWxH):	110x48x28mm *(DM40)* 135x53x30mm *(iDM70)*
Weight (batteries included):	135g *(DM40)* 160g *(iDM70)*

ACCESSORIES
Standard
Soft carrying bag
Batteries
Wrist strap *(DM40)*
User manual
User manual HTLaserMeter APP *(iDM70)*

NEW
NEW
HT DM40
3.188
8.562
40.00
Laser Distance Meter
MEAS
MAX/MIN
CLR
Unit
DM40
HA004000
HT iDM70
16.376
50.595
70.000
57998
Laser Distance Meter
Timer
MEAS
MAX MIN
CLR
Unit
iDM70
HA000700

TESTBOARD
MULTIFUNCTIONAL DEMOBOARD CASE

The TESTBOARD case was designed for use as an accessory together with measuring instruments, in order to learn their features, and is designed for didactical/promotion purposes. The TESTBOARD simulates a low voltage electrical system (type TT or TN) which allows performing a very large number of demonstrations on single and multi-function installation testers. Practical switches to enable/disable the OK/NO error conditions on measurements are included in the accessory. The structure is fitted in a strong plastic case protecting it from dust, water and shocks (IP67 degree with closed case), which allows a full “use on field” in each kind of situation and environment.

FUNCTIONS

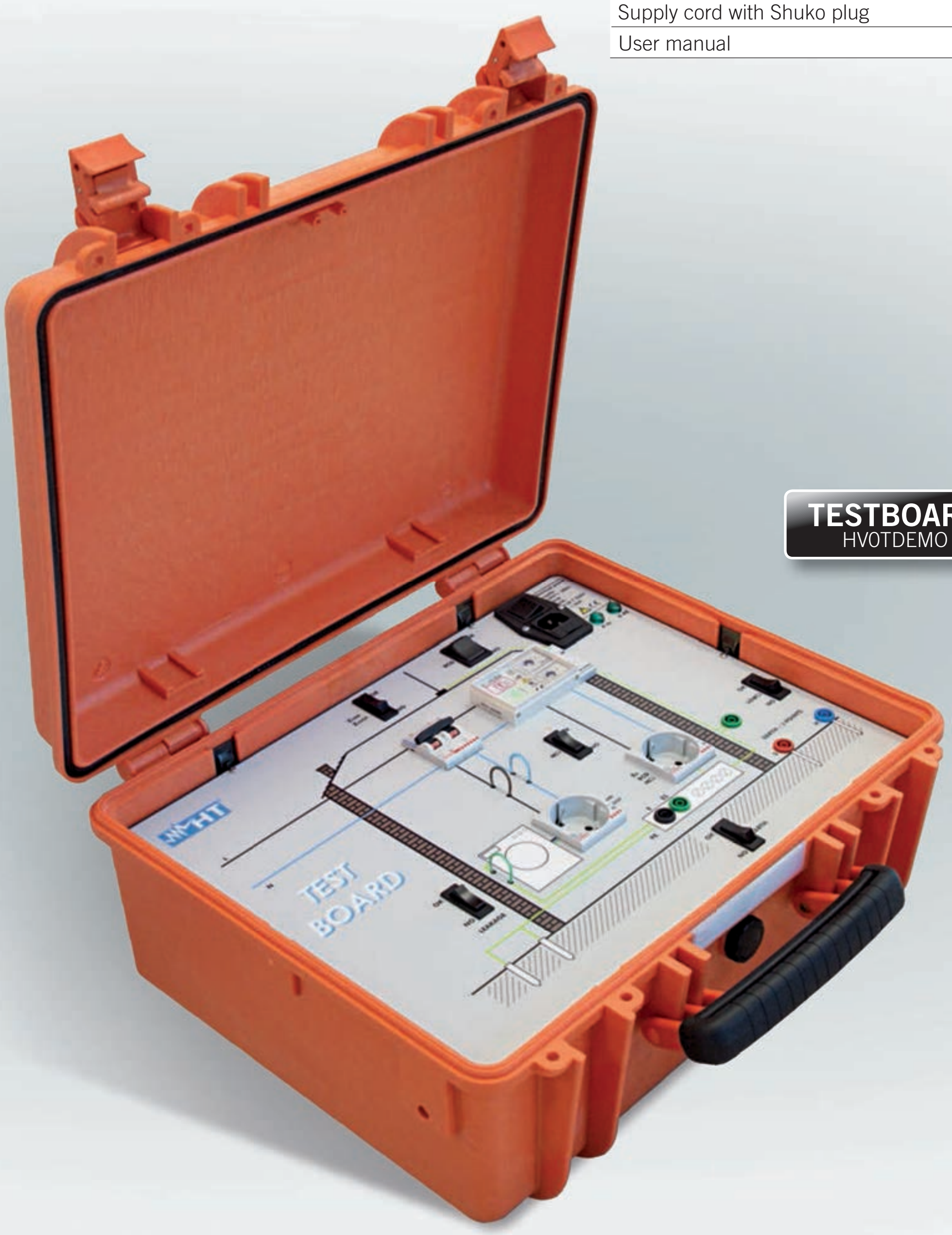
- Test on TT systems (continuity of earth conductors, insulation, RCD test, global earth test without RCD tripping, earth resistance with 3-wire method,direct and indirect leakage current)
- Test on TN systems (line/loop impedance, prospective short circuit current)
- 4mm safety banana input connectors
- 6 switches to simulate error conditions
- Fuse protection on power supply
- P-N and P-PE detection conditions on power supply
- Shuko europlug test sockets
- Test RCD adjustable in time and current
- Magnetothermic protection device C10 type

GENERAL SPECIFICATIONS

Power supply:	230V AC/ 50Hz
Protection fuse:	type T250V/3.15A
PE conductor detection:	green light indicators
Test RCD:	adjustable type A, AC standard,
Megnothermic switch:	type C10, 230V/10A
Test sockets:	type F30, 250V/16A
Safety:	IEC/EN61010-1
Mechanical protection:	IP67 (close case)
Max altitude:	2000m
Size (LxWxH):	474x415x214mm
Weight:	7.6kg

ACCESSORIES

Standard
Supply cord with Shuko plug
User manual



TESTBOARD
HV0TDEMO

INFRARED THERMAL CAMERAS

<table>
<tr><th>Model</th><th>THT70</th><th>THT60</th><th>THT49</th><th>THT47</th><th>THT44</th><th>THT42</th><th>THT41</th><th>THT40</th></tr>
<tr><td colspan="9">Technical specifications</td></tr>
<tr><td>Detector type</td><td colspan="8">Uncooled FPA Microbolometer</td></tr>
<tr><td>Spectral range</td><td colspan="8">8 to 14µm</td></tr>
<tr><td>Pixel sensor form [pxl]</td><td>384x288,25µm</td><td>160x120,25µm</td><td>384x288,25µm</td><td colspan="5">160x120,25µm</td></tr>
<tr><td>Sensitivity</td><td><0.06°C @ 30°C</td><td colspan="2"><0.08°C @ 30°C</td><td><0.08°C@30°C</td><td colspan="4"><0.1°C @ 30°C</td></tr>
<tr><td>Lens [mm]/FOV</td><td>22/25°x19°</td><td>7.5/30°x23°</td><td>25/22°x16°</td><td>7.5/30°x23°</td><td colspan="4">11/20.6°x15.5°</td></tr>
<tr><td>Temperature range [°C]</td><td colspan="2">-20 ÷ 400</td><td>-20 ÷ 250</td><td>-20 ÷ 400</td><td colspan="3">-20 ÷ 250</td><td>0 ÷ 250</td></tr>
<tr><td>Accuracy</td><td colspan="8">±2°C o ±2%lettura</td></tr>
<tr><td>Emissivity correction</td><td colspan="8">0.01 ÷ 1.00</td></tr>
<tr><td>Focus</td><td colspan="4">Manuale</td><td colspan="4">Auto/Manuale</td></tr>
<tr><td>Image frequency</td><td colspan="8">50Hz</td></tr>
<tr><td>Electronic zoom</td><td colspan="2">x1 ÷ x20</td><td>x2, x4</td><td>x1 ÷ x20</td><td colspan="4">-</td></tr>
<tr><td>Standard palettes</td><td colspan="3">8</td><td></td><td></td><td>6</td><td colspan="2">4</td></tr>
<tr><td>Customized palettes</td><td colspan="2">• (10)</td><td>-</td><td>• (10)</td><td colspan="4">-</td></tr>
<tr><td>Advanced analysis (Spot, Line, Area, Isotherm)</td><td colspan="2">•</td><td>-</td><td>•</td><td colspan="4">-</td></tr>
<tr><td colspan="9">Visual</td></tr>
<tr><td>Built-in camera [pxl]</td><td colspan="2">640x480</td><td>2M</td><td>-</td><td colspan="2">2M</td><td colspan="2">-</td></tr>
<tr><td>Target illuminator</td><td colspan="3">•</td><td colspan="5">-</td></tr>
<tr><td>Recording IR video</td><td colspan="2">On SD card</td><td>On SD card and PC by USB</td><td>On SD card</td><td>On SD card and PC by USB</td><td colspan="2">On SD card</td><td>-</td></tr>
<tr><td>Display</td><td colspan="2">3.5” TFT touch screen</td><td>3.5” TFT LCD</td><td>3.5” TFT touch screen</td><td colspan="4">3.5” TFT LCD</td></tr>
<tr><td>Video output</td><td colspan="5">PAL/NTSC</td><td colspan="3">-</td></tr>
<tr><td>Picture in picture (PiP)</td><td colspan="3">• (Fusion)</td><td>-</td><td colspan="2">• (Fusion)</td><td colspan="2">-</td></tr>
<tr><td colspan="9">Memory</td></tr>
<tr><td>Built-in memory</td><td colspan="2">-</td><td>•</td><td>-</td><td colspan="2">•</td><td colspan="2">-</td></tr>
<tr><td>Auxiliary memory</td><td colspan="2">4GB micro SD card</td><td>4GB SD card</td><td>4GB micro SD card</td><td colspan="4">4GB SD card</td></tr>
<tr><td>Card memory size</td><td colspan="8">More of 1000 images</td></tr>
<tr><td>File format</td><td colspan="8">JPG standard</td></tr>
<tr><td>Voice annotation</td><td colspan="5">•</td><td colspan="3">-</td></tr>
<tr><td>Text annotation</td><td colspan="2">•</td><td>-</td><td>•</td><td colspan="4">-</td></tr>
<tr><td>IR video format</td><td colspan="2">MPEG4</td><td>not standard</td><td>MPEG4</td><td>not standard</td><td colspan="3">-</td></tr>
<tr><td>USB2.0</td><td colspan="8">•</td></tr>
<tr><td colspan="9">General features</td></tr>
<tr><td>Laser locator</td><td colspan="3">• (Class 2)</td><td>-</td><td colspan="2">• (Class 2)</td><td colspan="2">-</td></tr>
<tr><td>Battery type</td><td colspan="2">Li-ION</td><td>AA NiMH</td><td>Li-ION</td><td colspan="4">AA NiMH</td></tr>
<tr><td>Charging system</td><td colspan="7">Inside the camera or with the external quick battery charger</td><td>External</td></tr>
<tr><td>Battery life</td><td colspan="2">4.5 hours</td><td>2 hours</td><td>4.5 hours</td><td colspan="4">2 hours</td></tr>
<tr><td>External power supply</td><td colspan="8">AC adapter 110/240VAC, 50/60Hz</td></tr>
<tr><td>Operating temperature [°C]</td><td colspan="2">-20 ÷ 50</td><td>-10 ÷ 50</td><td>-20 ÷ 50</td><td colspan="3">-10 ÷ 50</td><td>0 ÷ 50</td></tr>
<tr><td>Storage temperature [°C]</td><td colspan="2">-40 ÷ 70</td><td>-20 ÷ 60</td><td>-40 ÷ 70</td><td colspan="3">-20 ÷ 60</td><td>-10 ÷ 60</td></tr>
<tr><td>Humidity [%RH]</td><td colspan="2">10 ÷ 90</td><td>10 ÷ 95</td><td>10 ÷ 90</td><td colspan="4">10 ÷ 95</td></tr>
<tr><td>Encapsulation</td><td colspan="2">IP65</td><td>IP54</td><td>IP65</td><td colspan="3">IP54</td><td>IP43</td></tr>
<tr><td>Shock</td><td colspan="2">25g (IEC60068-2-29)</td><td>30g</td><td>25g</td><td colspan="4">30g (IEC60068-2-29)</td></tr>
<tr><td>Vibration</td><td colspan="8">2g (IEC60068-2-6)</td></tr>
<tr><td>Drop test</td><td colspan="2">2m</td><td>-</td><td>2m</td><td colspan="4">-</td></tr>
<tr><td>Dimensions (LxWxH) [mm]</td><td colspan="2">243x103x160</td><td>252x182x112</td><td>243x103x160</td><td colspan="4">240x124x111</td></tr>
<tr><td>Weight (battery incl.) [kg]</td><td colspan="2">0.92</td><td>1</td><td>0.92</td><td colspan="4">0.73</td></tr>
<tr><td>Page</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td><td>80</td><td>80</td><td>81</td></tr>
</table>

THT70

ADVANCED IR CAMERA 384X288 PXL WITH TOUCH-SCREEN DISPLAY

The THT70 is a powerful advanced infrared thermal camera designed for a simply use up to detailed analysis performed by skilled thermal imaging operators. The core of the instrument is the internal icon structure menu inside a capacitive LCD TFT high brightness touchscreen which allows really intuitive operations with finger touch selections. THT70 saves the thermal and visual images in micro SD-cards in a standard JPG format, and also allow transferring the data onto the PC via USB interface. Live active IR data video recording is also available. THT70 has an really accurate IR sensor with great resolution (384x288pxl) which makes it perfectly suitable when carrying out preventive maintenance operations on any industrial and building application. The instrument have a wide temperature range (max 400°C) and a lot of internal features as the possibility to perform advanced analysis including spots, lines, areas and isothermal on each image. This instrument is ideal to detect electric problems, to check mechanical devices, to detect problems in the hydraulic system, forced ventilation, etc…

NEW

THT70
HN000070

InfraRed Lens
F/1.0
f=22mm

InfraRed Lens
f=22mm
WITH CAPACITIVE
TOUCH-SCREEN
AND 384X288PXL

CAMERA SPECIFICATION

Thermal	
Detector type:	Uncooled FPA Microbolometer
Spectral range:	8 to 14µm
Pixel sensor form:	384x288pxl,25µm
Sensitivity:	<60mK @ (30°C)
Lens/FOV (Field Of View):	22mm / 24.6° x 18.6°
IFOV (@1m):	1.14mrad
Focus:	Manual
Image frequency:	50Hz
Electronic zoom:	x1 ÷ x20
Rotation of image:	0° ÷ 360° increased by 1°
Standard palette:	8
Customized palettes	8 totally custom + 2 fixed
Advanced analysis on screen	3 spot + 2 lines + 3 areas
Automatic Hot/cold detection:	Auto Hot/Cold markers
Isotherm:	High/Low/temperature interval
Emissivity correction:	Selectable from 0.01 to 1.0 with values of common material
Measurement corrections:	Emissivity, reflexed temperature, distance, relative humidity, offset temperature
Temperature units:	°C, °F, °K
Visual	
Display:	LCD, 3.5", 320x240pxl, capacitive touch-screen
Built-in visual camera:	640x480pxl, FOV 62.3°
Image modes:	IR, Visual, PiP, Image fusion
Picture in picture:	IR area on Visual image and Visual area on IR image
Target illuminator:	White LED torch
General features	
Auxiliary memory:	4GB micro SD card
Card memory size:	> 1000 standard JPG pictures
Voice annotation:	max 60s/image
Text annotation:	internal virtual keyboard
IR video on SD card:	MPEG4 format (> 60min)
Video output:	PAL/NTSC
PC interface:	USB 2.0
Laser pointer:	Class 2

ACCESSORIES

Standard
22mm lens and protection cover
2x7.4V Li-ION rechargeable batteries
AC/DC adapter + universal plugs
Charger base
4GB micro SD card and card reader
USB cable for PC connection
RCA video output cable
Rubber support for LCD hood
Rubber support for tripod
Earphone set
CD-ROM with THTLink software
User manual on CD-ROM
Quick reference guide
ISO9000 calibration certificate
Rigid carrying case
Optional
11mm lens, FOV 47.1°x 36.2°
44mm lens, FOV 13°x 9.8°

THT60
POWERFUL IR CAMERA WITH TOUCH-SCREEN DISPLAY

The THT60 is a powerful infrared thermal camera designed for a simply use up to detailed analysis performed by skilled thermal imaging operators. The core of the instrument is the internal icon structure menu inside a capacitive LCD TFT high brightness touchscreen which allows really intuitive operations with finger touch selections. THT60 saves the thermal and visual images in micro SD-cards in a standard JPG format, and also allow transferring the data onto the PC via USB interface. Live active IR data video recording is also available. THT60 has an IR sensor with optimum resolution (160x120pxl) which makes it perfectly suitable when carrying out preventive maintenance operations on any industrial application. The instrument have a wide temperature range (max 400°C) and a lot of internal features as the possibility to perform advanced analysis including spots, lines, areas and isothermal on each image. This instrument is ideal to detect electric problems, to check mechanical devices, to detect problems in the hydraulic system, forced ventilation, etc…

CAMERA SPECIFICATION

Thermal	
Detector type:	Uncooled FPA Microbolometer
Spectral range:	8 to 14µm
Pixel sensor form:	160x120pxl
Sensitivity:	<80mK @ (30°C, 50Hz)
Lens/FOV (Field Of View):	7.5mm / 33° x 24°
IFOV (@1m):	3.33mrad
Focus:	Manual
Image frequency:	50Hz
Electronic zoom:	x1 ÷ x20
Rotation of image:	0° ÷ 360° increased by 1°
Standard palette:	8
Customized palettes	8 totally custom + 2 fixed
Advanced analysis on screen	3 spot + 2 lines + 3 areas
Automatic Hot/cold detection:	Auto Hot/Cold markers
Isotherm:	High/Low/temperature interval
Emissivity correction:	selectable from 0.01 to 1.0 with values of common material
Measurement corrections:	Emissivity, reflexed temperature, distance, relative humidity, offset temperature
Readout temperature:	°C, °F, °K
Visual	
Display:	LCD, 3.5", 320x240pxl, capacitive touch-screen
Built-in visual camera:	640x480pxl
Image modes:	IR, Visual, PiP, Image fusion
Picture in picture:	IR area on Visual image and Visual area on IR image
Target illuminator:	White LED torch
General features	
Auxiliary memory:	4GB micro SD card
Card memory size:	> 1000 standard JPG pictures
Voice annotation:	max 60s/image
Text annotation:	internal virtual keyboard
IR video on SD card:	MPEG4 format (> 60min)
Video output:	PAL/NTSC
PC interface:	USB 2.0
Laser pointer:	Class 2

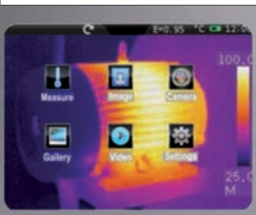
ACCESSORIES

Standard

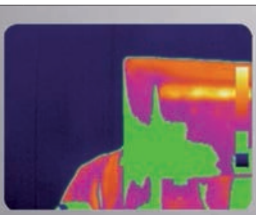
- 7.5mm lens and protection cover
- 2x7.4V Li-ION rechargeable batteries
- AC/DC adapter + universal plugs
- Charger base
- 4GB micro SD card and card reader
- USB cable for PC connection
- RCA video output cable
- Rubber support for LCD hood
- Rubber support for tripod
- Earphone set
- CD-ROM with THTLink software
- User manual
- ISO9000 calibration certificate
- Hard carrying case

Optional

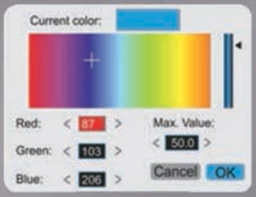
- 11mm lens FOV 20.6° x 15.5°
- 22mm lens FOV 10.4° x 7.8°
- 33mm lens FOV 6.9° x 5.2°



Icon menu



Isothermal feature



Current color:

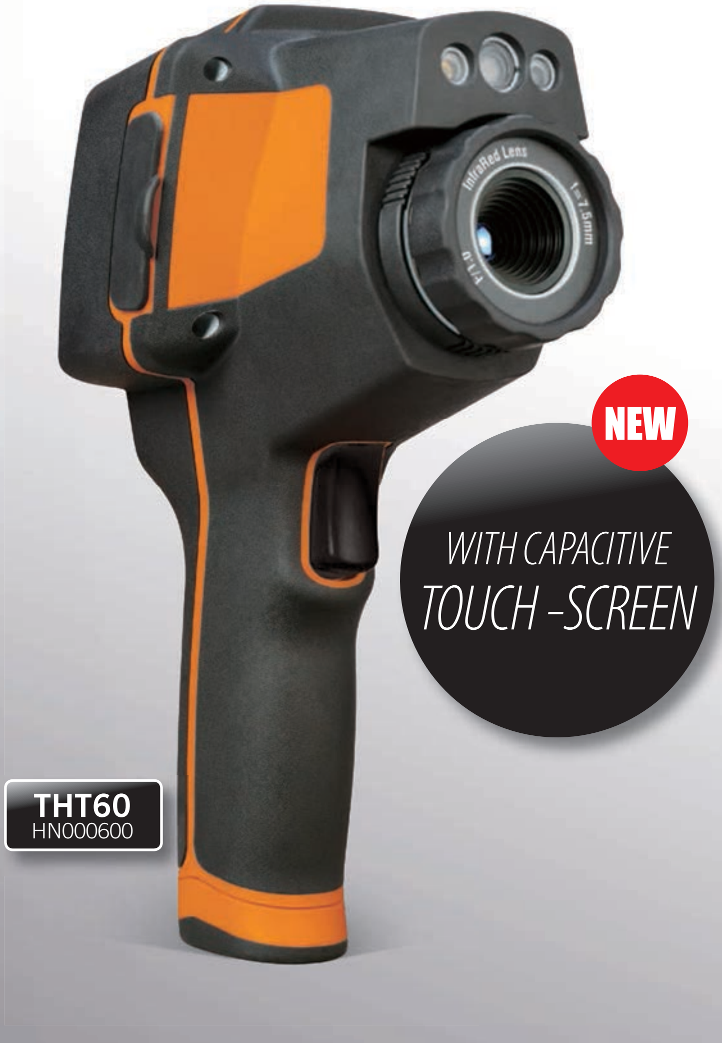
Red: < 87 >

Green: < 103 >

Blue: < 206 >

Max. Value: < 50.0 >

Customized palette



THT49

PROFESSIONAL INFRARED THERMAL CAMERA

The new THT49 is the latest product, innovative thermal imager for spotting electrical problems, identifying mechanical issues, predictive maintenance and energy preservation. THT49 is packed with features like integrated visual camera, the Picture-in-Picture (PIP) feature which takes infrared thermography to a new level by overlaying the rich detail of an infrared image over a hi-res visible light image in real-time, making it easier to identify critical problems more quickly and accurately. THT49 is the only infrared camera in its class with a built-in illuminator lamp that ensures quality visual images regardless of job site lighting levels. Thanks to the reporting software included in the camera it is also easy to create reports, analyze and document your findings.

CAMERA SPECIFICATION	
Thermal	
Detector type	Uncooled FPA Microbolometer
Spectral range	8 to 14 µm
Pixel sensor form	384x288pxl, 25µm, 110.592pxl
Sensitivity	≤80mK @ 30°C @ 60Hz
Lens/FOV (Field Of View)	25mm / 21.7°x16.4°
Focus	Manually
Image frequency	50Hz PAL/ 60Hz NTSC, non-interlaced
Electronic zoom	x2, x4
Palette	8
Visual	
Built-in digital video	CMOS Sensor, 1600x1200 pixels (2Mpixels), 2^{24} ture colors
Target illuminator	Yes
Display	
External display	3.6" TFT LCD with high resolution
Video output	PAL/NTSC
Picture in picture	Visual and IR blending
Live thermal video recording	Live active IRdata video recording. Powerful recording up to 30 minutes on SD card via USB on PC & smaller length event into the camera's own RAM/Uflash.
Image store	
Media	Removable 2GB SD card & built-in memory (8GB SD card optional)
File format	JPEG with analysis records
Internal memory size	150 images
Card memory size	Up to 1000 images
Voice annotation	Up to 60 seconds per image

ACCESSORIES	Code
Standard	
25mm lens and protection cover	
4GB SD card and card reader	
12x AA rechargeable batteries	
AC adapter	
USB cable for PC connection	
Video cable	
Wirst strap	
Windows ThermoVIewPRO software	
User manual	
Safety case	
Soft bag	
ISO9000 calibration certificate	
Sun shield	SSHIELD49
Optional	
Universal tripod adapter	TRIPO49
13 mm wide angle lens FOV 40.5° x 31.0°	
42 mm lens FOV 13.0° x 9.8°	
70 mm telelens FOV 7.8° x 5.9°	
350° C high temperature	
1500° C high temperature	

HIGH RESOLUTION
384 x 288
THT49
HN000049

THT47

IR CAMERA 160x120 PXL WITH TOUCH-SCREEN DISPLAY

The THT47 is a infrared thermal camera designed for a simply use up to detailed analysis performed by skilled thermal imaging operators. The core of the instrument is the internal icon structure menu inside a capacitive LCD TFT high brightness touchscreen which allows really intuitive operations with finger touch selections. THT47 saves the thermal and visual images in micro SD-cards in a standard JPG format, and also allow transferring the data onto the PC via USB interface. Live active IR data video recording is also available. THT47 has an accurate IR sensor with resolution (160x120pxl) which makes it perfectly suitable when carrying out preventive maintenance operations on any industrial application. The instrument have a wide temperature range (max 400°C) and a lot of internal features as the possibility to perform advanced analysis including spots, lines, areas and isothermal on each image. This instrument is ideal to detect electric problems, to check mechanical devices, to detect problems in the hydraulic system, forced ventilation, etc…

CAMERA SPECIFICATION	
Thermal	
Detector type	Uncooled FPA Microbolometer
Spectral range	8 to 14 μm
Pixel sensor form	160x120pxl,25μm
Sensitivity	<80mK @ (30°C)
Lens/FOV (Field Of View)	7.5mm / 29.8° x 22.6°
Focus	Manual
Image frequency	50Hz
Electronic zoom	x1, x20
Standard palettes	8
Customized palettes	8 totally custom + 2 fixed
Advanced analysis on screen	3 spot + 2 lines + 3 areas
Automatic Hot/Cold detection	Auto Hot/cold markers
Isotherm	High/Low/Temperature interval
Emissivity correction	Selectable from 0.01 to 1.0 with values of common materials
Measurement corrections	Emissivity, reflexed temperature, distance, relative humidity, offset temperature
Temperature units	°C, °F, °K
Display	LCD, 3.5", 320x240pxl, capacitive touch-screen
General features	
Auxiliary memory	4GB micro SD card
Card memory size	> 1000 standard JPG pictures
Voice annotation	max 60s/image
Text annotation	Internal virtual keyboard
IR video on SD card	MPEG4 format (>60min)
Video output	PAL/NTSC
PC interface	USB 2.0

ACCESSORIES
Standard
7.5mm lens and protection cover
7.4V Li-ION rechargeable battery
AC/DC adapter + EU plug
Charger base
4GB micro SD card
USB cable for PC connection
RCA video output cable
Earphone set
CD-ROM with THTLink software
User manual on CD-ROM
Quick reference guide
ISO9000 calibration certificate
Soft carrying bag
Optional
Rubber support for LCD hood
Rubber support for tripod
Set universal plugs

NEW
THT47
HN000047
HT
THT47
E=0.95
°C
12:00
Measure
Ima
Gallery
Video
Settings
25.0
M

THT41 - THT42 - THT44
PROFESSIONAL INFRARED THERMAL IMAGERS

THT41, THT42 and THT44 are hand-held infrared cameras developed to quickly become the technician's best friends. In a rugged and ergonomic design, THT41, THT42 and THT44 are robust and shock-resistant for any working environment. THT41, THT42 and THT44 are specifically designed for products predictive maintenance, electrical inspections, non-destructive testing, process control applications, quarantine inspection. security monitoring solutions, firefighting finding and rescue, building energy testing and diagnostics, veterinarian helper, etc. THT42 and THT44 are featured with Infra Fusion technology to pin-point the problem exactly in high efficiency.

IMAGING	THT41	THT42	THT44
Thermal			
Detector type	FPCUncooled microbolometer		
Spectral range	8 to 14 μm		
Pixels	160 x 120, 25 μm		
Sensitivity	≤ 100mK @ 30°C @ 60Hz		
Lens / FOV	11mm / 20.6°x 15.5°		
Focus	Auto and manual (thermal and visual)		
Image frequency	50 Hz	50 Hz	50 Hz PAL / 60 Hz NTSC
Palette	4	6	8
Visual			
Built-in Digital Video	-	CMOS sensor 1600x1200 pxl (2Mpxl), 2^{24} true colors	CMOS sensor 1600x1200 pxl (2Mpxl), 2^{24} true colors
Display			
External display	3.6" TFT LCD screen		
Video output	-	-	PAL / NTSC
Infra fusion	-	Visual and IR blending	Visual and IR blending
Live thermal video recording	-	-	• by USB to PC
Built-in flash memory	-	•	•

ACCESSORIES	Code
Standard	
11mm lens and protection cover	
4GB SD card and card reader	
12 AA rechargeable batteries	
AC adapter	
USB extension cable	
USB driver	
Wrist strap	
Windows ThermoVIewPRO software	
User manual	
ISO9000 calibration certificate	
Safety case	
Videocable *(THT44)*	
Sun shield	SSHIELD49
Optional	
Universal tripod adapter	TRIPO49
7 mm wide angle lens FOV 31.9° x 24.2°	
30 mm telelens FOV 7.6° x 5.7°	
350° C high temperature	
1200° C high temperature	

THT41
HN000041

THT42
HN000042

Complete set for transport of accessories

THT44
HN000044

THT40
ENTRY-LEVEL INFRARED CAMERA WITH 160X120PXL RESOLUTION

THT40 is a hand-held infrared camera developed inside a rugged and ergonomic shock-resistant case designed for any working environment. The model has a bright color LCD. THT40 is capable of saving thermal images into SD card under JPG standard format, and also allows data transfer to PC via USB. This meter is the ideal solution to a lot of practical applications (detection of electrical problems, check of mechanical equipment, diagnosis on building structures, solving problems at hydraulics systems and HVAC, etc.) whenever it is necessary to operate safety and prevention systems

CAMERA SPECIFICATION	
Thermal	
Detector type	Uncooled FPA Microbolometer
Spectral range	8 to 14µm
Pixel sensor form	160x120pxl, 25µm, 19.200pxl
Sensitivity:	<100mK @ (30°C)
Lens/FOV (Field Of View)	11mm / 20.6° x 15.5°
Focus	Automatic and motorised
Image frequency	50Hz
Palettes	4
Measurement cursors	2 (Fixed, dynamic)
Emissivity correction	Selectable from 0.01 to 1.0 with values of common materials
Measurement corrections	Emissivity, reflexed temperature, distance, humidity)
Temperature units	°C, °F
Display	LCD, TFT 3.5”
General specification	
Auxiliary memory	4GB SD card
Card memory size	> 1000 JPG standard images
PC interface	USB 2.0
Laser pointer	Class 2

ACCESSORIES	Code
Standard	
AC adapter + universal plugs	
AA rechargeable battery, 12 pcs	YABAT0001000
External battery charger, 2 pcs	YABAT0002000
4GB SD card and card reader	
USB cable	
Windows ThermoVIewPRO software	
User manual	
ISO9000 calibration certificate	
Wrist strap	
Sun shield	SSHIELD49
Leather sheath	
Soft bag	
Optional	
Universal tripod adapter	TRIPO49

THT40
HN000040
ROBUST AND
SHOCK
RESISTANT

Thermal images

HT3320
PROFESSIONAL VIDEO INFRARED THERMOMETER

HT3320 is a digital video thermometer provided with an integrated digital camera capable of measuring temperature without contact thanks to its ergonomic "gun" shape using infrared rays. High accuracy is granted by a built-in laser pointer and a good Distance to Spot ratio of 50:1. The instrument performs saving of JPG pictures and small 3GP videos into its internal memory or external micro SD card as well as temperature recordings with programmable time thanks to the internal data logger feature. All tests can be easily downloaded to a PC through the provided USB cable without any software. Other measurements which can be performed are air temperature/humidity with internal probe, dew point/wet bulb temperature and temperature with K type probe. HT3320 permits to set MAX and MIN alarm thresholds on the whole range activating an alarm buzzer should these limits be exceeded. Data HOLD function freezes results on display. It is provided with a large backlighted LCD display for easier reading under critical conditions. The Auto Power Off function preserves internal battery when instrument doesn't work.

TECHNICAL SPECIFICATIONS
Infrared temperature measurement from –50° to 1000°C (from -58°F to 1832°F)
Integrated camera (640x480pxl)
Distance / Spot ratio of 50:1
Saving of pictures under JPG format
Saving of videos under 3GP format
Measurement of air temperature/humidity with internal sensor
Measurement of dew point/wet bulb temperature
Measurement of temperature with K type probe
Data logger for recording of temperature measurements
Internal memory and external SD Card
Emissivity regulation
Double laser pointer
Selection between °C and °F measurement units
Setting alarm thresholds Hi and Lo on measurements
Data HOLD, MAX/MIN/DIF/AVG features
Continue measurement
Backlight
Auto Power OFF
Connection to PC via USB cable

STANDARD
CE marking
EMC 2004/108/CE directive

ACCESSORIES
Standard
K type probe
Rechargeable battery Li-ION
Battery charger adapter
USB cable
Tripod
Carrying case
User manual

11:56 12-10-2011
23.9 °C
Esc
Enter

HT3320
HA000179

VIDEO
THERMOMETER
(INFRARED)

HT300 - HT3301 - HT3310
INFRARED/CONTACT THERMOMETERS

The HT300, HT3301 and/or HT3310 models are portable digital thermometers which can perform contact and infrared temperature measurements in a very easy way. The model HT3301 can also save the measured results.

FUNCTIONS	HT300	HT3301	HT3310
Temperature with type K/J probe	•	only K	
Infrared temperature measurement		•	•
Measurement range with type K/J probe	200°C÷1370°C (type K) -200°C÷1050°C (type J)	-50°C ÷ 1370°C -58°F ÷ 2498°F	
Measurement range infrared mode		-50 ÷ 1050°C -58°F ÷ 1922°F	-50 ÷ 1000°C -58°F ÷ 1832°F
Resolution with type K/J probe	0.1°C / 0.1°F	0.1°C / 0.1°F	
Resolution infrared mode		0.1°C / 0.1°F	0.1°C / 0.1°F
Accuracy with type K/J probe (only meter)	±(0.05%rdg + 0.7°C) ±(0.05%rdg + 1.4°F)	±(1.5%rdg + 2.0°C) ±(1.5%rdg + 5°F	
Accuracy infrared mode		±(1.5%rdg + 2.0°C) ±(1.5%rdg + 3.6°F)	±(1.5%rdg + 2.0°C) ±(1.5%rdg + 3.6°F)
Selection °C / °F units	•	•	•
Distance / Spot ratio for infrared mode		30:1	50:1
Class 2 laser pointer		•	•
Emissivity adjustment		•	•
Setting of thresholds alarms on measurements		•	•
Memory		(20 locations)	
Backlight LCD display		•	•
MAX/MIN	•	•	•
MAX/MN/DIF/AVG		•	•
Data HOLD	•	•	•
Relative measurement	•		
Power supply	1x9V battery 6F22	1x9V battery 6F22	1x9V battery 6F22
AutoPowerOFF	•	•	•
Dimensions (LxWxH)	130 x 56 x 38 mm	170 x 56 x 230 mm	100 x 56 x 230 mm
Weight (included batteries)	170g	290g	290g

ACCESSORIES	HT300	HT3301	HT3310
Standard			
Type K bead probe	•	•	
Carrying bag	•	•	•
Battery	•	•	•
User manual	•	•	•
Optional			
Type K probes	•	•	

HT300
HA000300
HT3301
HA003301
HT3310
HA003310

HT950N - HT4000 - HT2234N
DIGITAL THERMOHYGROMETER, THERMOANEMOMETER AND TACHOMETER

HT950N controller is designed to monitor the temperature inside internal circuits of MV/LV oil or air transformers in order to prevent possible breakaging or excessive overheating. The model (96 x 96 mm), built in panel configuration, receives up to 4 input signals from Pt100 DIN 3-wire and performs temperature measurement up to 200°C.
HT4000 is a multifunction analyzer of environmental parameters as air temperature/humidity, air speed, air flow and pressure. It is particularly indicated for HVAC plants verifies.
HT2234N is a digital tachometer to perform RPM measurements of rotating parts (disks, motor trees, etc..) both on contact and without contact by using of a laser emission ray transmitted and received from the object under measurement.

FUNCTIONS	HT950N

- Temperature range from 0°C to 200°C
- 4 x 3-wire DIN Pt100 DIN available inputs
- 3 x free contact 5A/250V output relais
- 4 temperature alarms setting thresholds
- MAX temperature recorded on each input signal
- Automatic adjustment of Pt100 cable resistance
- LED indications and red LED displays
- Dust protection keyboard
- AC/DC external power supply

FUNCTIONS	HT4000	HT2234N
Air temperature measurement in °C / °F	●	
Atmospheric pressure	●	
Relative humidity measurement (%RH)	●	
Air speed measurement (m/s) and air flow measurement (CMM/CFM)	●	
RPM with and without contact measurement		●
Counter of events		●
Laser pointer		●
MAX / MN / HOLD		●
AutoPowerOFF	●	●

GENERAL SPECIFICATIONS			HT4000
Meas. unit	Range	Meas. unit	Range
Air speed measurement with external probe			
m/s	0.4 ÷ 25	Km/hr (kph)	1.5 ÷ 90
mph	0.9 ÷ 55	Knots (kts)	0.8 ÷ 48
ft/min (fpm)	79 ÷ 4921	Beaufort	1 ÷ 10
Airflow measurement with external probe			
CMM	0 ÷ 9999	CFM	0 ÷ 9999
Air humidity measurement with internal sensor			
%RH	0 ÷ 100		
Air temperature measurement with internal sensor			
°C	-20 ÷ 60	°F	-4 ÷ 140
Atmospheric pressure measurement with internal sensor			
hPa	350 ÷ 1100	inHg	10.3 ÷ 32
mmHg	263 ÷ 825		
Power supply: 1x9V battery type IEC6F22			
Dimensions (LxWxH): 130x56x38mm			
Weight (included batteries): 160g			
Standard accessories			
Carrying case			
External probe			
Battery + user manual			

GENERAL SPECIFICATIONS	HT2234N
Non-contact speed range: 10.00 ÷ 99999 RPM	
Contact speed range: 20.00 ÷ 29999 RPM	
Resolution: 0.01 ÷ 1RPM	
Events counter range: 0 ÷ 99999	
Response time: 0.7s (>60RPM)	
Distance from object: 50 ÷ 300mm	
Display: LCD, 5 dgt, 99999 points	
AutoPowerOFF: after 30min	
Data HOLD	
MAX/MIN	
Power supply: 4x1.5V batteries AA LR06	
Dimensions (LxWxH): 172x63x36mm	
Weight (included batteries): 190g	
Standard accessories	
Mechanical adapter + fixing screw	
Rubber part	
Rubber terminals of various shape	
Reflecting tape	
Carrying bag	
Batteries+user manual	

HT950N Controller
HT

HT950N
HA000950

HT
HT4000
AIR VELOCITY METER

HT4000
HN004000

START
HT
HT 2234N
CE

HT2234N
HA02234N

HT307 - HT309 - HT204

LUXMETERS AND POTABLE SOLAR POWER METERS

HT307 and HT309 are digital luxmeters to measure lighting up to 20kLux *(HT307)* and 400kLux *(HT309)* through silicon photodiode. HT309 permits also lighting measurement of LED sources with several colours setting the corresponding correction factors. HT204 is a digital solar meter to measure solar radiation up to 2000W/m^2 very useful in industrial photovoltaic installations for the evaluation of solar power incidence on panels.

FUNCTIONS	HT307	HT309
Measurement range (Lux/Fc)	0.01 ÷ 200kLux 0.01 ÷ 20kFc	0.01 ÷ 400kLux 0.01 ÷ 40kFc
Lighting measurement (Cd)		•
Lighting measurement of LED sources		•
Accuracy	±3%rdg	
Zeroing	Manual with trimmer	Digital
Autorange		•
Spectral response correction	•	•
Data HOLD, MAX/MIN	•	•(even AVG)
Internal memory		•
DC analogical output	•	
Auto Power OFF		•
Reference standards	Class A JIS C 1609:1993	Class A JIS C 1609:1993 + CNS 5119

ACCESSORIES	HT307-HT309
Standard	
Jack for DC analogical output connection *(HT307 only)*	
Trimmer adjustment screwdriver *(HT307 only)*	
Carrying bag	
Test certificate	
Battery	
User manual	

FUNCTIONS	HT204
Measurement range	1 ÷ 1999 W/m^2 1 ÷ 634 BTU/(ft^2 * h)
Resolution	1W/m^2 1BTU/(ft^2*h)
Accuracy	10 W/m^2 or 5% (whichever is the greater) 1 BTU/(ft^2 * h) or 5% (whichever is the greater)
Unit of measurement	W/m^2 and BTU/(ft^2*h)
Zeroing	Manual with trimmer
Unit of measurement	W/m^2 and BTU/(ft^2 * h)
Manual range	•
Data HOLD, MAX/MIN	•

ACCESSORIES	HT204
Standard	
Carrying bag	
CE conformity declaration	
Battery	
User manual	

HT307
Lux/fc light meter
HT204
Solar Power Meter
HT309
Multi-LED Light Meter
HT204
HA000157
HT307
HA000309
HT309
HA003090

PROFESSIONAL DIGITAL

SOUND-LEVEL METER

Model	HT154	HT155	HT157
Instrument category (class)	Class 2	Class 1	Class 1
Noise measuring range	30 ÷130dB	25 ÷140dB	25 ÷140dB
Noise measurement resolution	0.1dB	0.1dB	0.1÷0.01dB
Frequency range	30Hz ÷ 8kHz	10Hz ÷ 20kHz	10Hz ÷ 20kHz
Dynamic range	50dB	90dB	90dB
Sound pressure level (SPL) measurement	•	•	•
Measurement of noise equivalent levels (Leq)		•	•
Frequency weighting	A/C	A/C/Z	A/C/Z
Integration over time	Fast/Slow	Fast/Slow/ Impulse	Fast/Slow/ Impulse
Integration with programmable period		•	•
Peak measurements (Peak-, Peak+)		•	•
MAX/MIN SPL value display	•	•	•
Statistic analysis of noise with “A” weighting		•	•
SPL analysis over 24H		•	•
Spectrum analysis with filter in octave band (1/1)			• 19Hz÷16kHz
Spectrum analysis with filter in 1/3 octave band			• 12.5Hz÷16kHz
Supplied portable calibrator	• (Class 2)	• (Class 1)	• (Class 1)
Manual calibration with trimmer	•	•	•
Accurate calibration with internal procedure		•	•
Pre-polarized "½" condenser microphone	•	•	•
AC and DC analogue outputs with 3.5mm jack	•	• (AC only)	• (AC only)
Internal memory for data saving		• (128 records)	• (128 records)
Recalling results on the display		•	•
Mini-USB interface for PC connection		•	•
Data transfer to USB flash drive		•	•
Windows software for saved data analysis		•	•
Display	LCD 3½ digits	LCD matrix 240 x 160	LCD matrix 240 x 160
Display backlighting		•	•
Power supply	Battery 1 x 9V 6F22	Battery 4 x 1,5V AA	Battery 4 x 1,5V AA
External power supply provided		•	•
Reference standard	IEC 61672 Class 2	IEC 61672 Class 1	IEC 61672 Class 1 IEC 61620 Class 1
Dimensions (LxWxHmm)	289x80x32	285x90x39	285x90x39
Weight (batteries included)	300g	500g	500g
Page	82	83	83

HT154

DIGITAL SOUND-LEVEL METER TYPE 2

Model HT154 is a precision digital sound-level meter Type (Class) 2, ideal for common inspections on environmental noise, verifications of soundproofing levels, sound pollution, etc., with no obligation for certifications according to reference standards. This instrument is extremely simple and intuitive to use thanks to its wide LCD display and to the management of all operations by means of 5 keys only. This instrument allows measuring sound pressure levels (SPL) with A and C weighting with Fast and Slow integrations indicated in the measure of the various types of environmental noise. The sound-level meter HT154 is provided with a portable calibrator for integrity checks before any operation is carried out, inside a practical transport case with all useful accessories for measurement.

FUNCTIONS

- Sound-level meter category:Type (Class) 2
- Measuring range:30 ÷ 130dB
- Noise measurement resolution: 0.1dB
- Dynamic range: 50dB
- Sound pressure level (SPL) measurement
- Weighting in A and C frequency
- Integration over time: Fast / Slow
- MAX / MIN SPL display
- ½ condenser microphone
- AC and DC Analogue outputs (max 1V)
- Manual calibration with trimmer
- Supplied portable calibrator

GENERAL SPECIFICATIONS

Display	LCD, 3½ digits
Power supply	1x9V battery type IEC 6F22
Reference standard	IEC 61672 type2
Size (LxWxH) mm	289x80x32
Weight (with batteries)	300g

ACCESSORIES

Standard

- Portable calibrator HT150 with built-in battery
- Windproof protection
- Screwdriver for manual calibration of sound-level meter
- Jack for AC/DC analogue outputs
- Rigid transport bag
- Battery for sound-level meter
- User manual for sound-level meter

HT154
HN000154
45.7
A/C
LEVEL
FAST SLOW
MAX MIN
IEC 651 TYPEII

HT155 - HT157

PROFESSIONAL INTEGRATION SOUND-LEVEL METERS TYPE 1

Models HT155 and HT157 are portable integration sound-level meters type (class) 1, which can be used for monitoring the noise equivalent level (Leq), for measuring peak values, for verifying soundproofing levels, sound pollution, etc. Therefore this instrument is suitable for certification in compliance with the Legislative Decrees currently in force as regards measurements of environmental noise and noise in workplaces. The instruments have a wide measuring range (from 25 to 140dB) and several internal functions (statistic analysis, 24H analysis, Leq integration over time) which are fundamental for measurements, Model HT157 also allows carrying out detailed analyses of spectrum components of the noise by using built-in octave band and 1/3 octave band filters. Both models have an internal memory for saving data and an USB interface for PC transfer by Windows dedicated software, with possibility of numerical, graphic and statistic display. Sound-level meters are supplied in a handy and solid suitcase, with a portable calibrator for preliminary checks before any measuring operation is carried out.

FUNCTIONS	HT155	HT157
Sound-level meter category	Type 1	Type 1
Noise measuring range	25÷140dB	25÷140dB
Noise measurement resolution	0.0÷10.1dB	0.0÷10.1dB
Dynamic range	> 90dB	> 90dB
Sound pressure level (SPL) measurement	•	•
Meas. of noise equivalent levels (Leq)	•	•
Frequency weighting	A / C / Z	A / C / Z
Integration over time	F/S/ Impulse	F/S/ Impulse
Peak measurements (Peak-, Peak+)	•	•
Statistic analysis of noise type “A”	•	•
24H analysis of noise	•	•
Spectrum analysis in octave band		•
Spectrum analysis in $^{1}/_{3}$ octave band		•
½ condenser microphone	•	•
AC analogue output	•	•
Internal calibration in Class 1	•	•
Supplied portable calibrator	•	•
Internal memory for data saving	(128 groups)	(128 groups)
Interface with USB Pen Drive	•	•
USB interface for PC connection	•	•

GENERAL SPECIFICATIONS	
Display	LCD, matrix dots (240x160pxl) with backlight
Internal power supply	4x1.5V alkaline batteries type AA LR6
External power supply	Adapter 100-240VAC/5VDC
Reference standard	IEC 61672:2002 type1 IEC 61260:1995 type1 *(HT157)* IEC 60804:1985 type1 IEC 60651:1979 type1
Size (LxWxH) mm	285x90x39
Weight (with batteries)	500g

ACCESSORIES
Standard
Portable calibrator in Class 1
Power supply 100-240VAC/5VDC with USB output
Mini-USB/USB cable for PC connection
USB Pen Drive (TRASCEND JF V30/2GB)
USB cable for Pen Drive connection to the instrument
Windproof protection 60mm
Windows software for data transfer
Transport suitcase
4x1.5V alkaline batteries type AA LR06
Calibration certificate of sound-level meter and calibrator
User manual

HT157
HN000157
HT155
HN000155

MULTIFUNCTION METER

OPTIONAL ACCESSORIES

Model	HT96U	HT97U	HT98U	HP30D1	HP30C2	HP30C3	HTFLEX 3003	HTFLEX 33D	HTFLEX 35	HT4003
ZG47	•	•			•	•	•	•(s)	•	
GSC53N	•	•			•	•	•	•(s)	•	
GSC57	•	•			•	•	•			
SIRIUS89N	•	•			•	•		•(s)	•	
SIRIUS87										
MACROTEST5035										
COMBI420	•	•			•	•				•(*)(A)
COMBI419	•	•			•	•				
SPEED418										
M72, M73, M74	•(N)	•(N)	•(N)	•(N)	•(N)	•(N)				•
M75	•(N)	•(N)	•(N)	•(N)	•(N)	•(N)				•(s)
SOLAR200										
SOLAR300N	•	•	•	•	•	•	•	•(NPV)	•(NPV)	
SOLAR I-V	•	•	•	•	•	•				
MPP300	•	•	•(A4)	•(A4)	•	•		•	•	
PQA820	•(AB)	•(AB)	•(AB)	•(AB)	•(AB)	•(AB)	•(AB)			
PQA824	•	•	•	•	•	•	•	•(s)	•	
PQA823	•	•	•	•	•	•	•	•(s)	•	
VEGA78	•	•	•	•	•	•	•	•(s)	•	

*(N) with **NOCANBA** optional accessory ; (*) Transducer clamp not compliance for AC active power measurement ; (A) with **ABNACON** optional accessory ; (S) Provided as a standard accessory; (AB) with **ACONBIN** optional accessory; (A4) with **ACON3F4M** optional accessory; (NPV) not for Photovoltaic efficiency measurement.*

CLAMPS AND MULTIMETERS

OPTIONAL ACCESSORIES

Model	T10	TK107	TK108	TK109	TK110
HT21					
HT210	•(S)	•	•	•	•
HT321					
HT322	•	•	•	•	•
HT326, HT327					
HT32, HT37, HT39					
HT710, HT712					
HT4012, HT4014, HT4020, HT4022					
HT9012					
HT9014, HT9015	•(S)	•	•	•	•
HT9019					
HT9021	•(S)	•	•	•	•
HT9022					

(S) provided as a standard accessory

MULTIFUNCTION METER

 HT4004N	 HT4005K	 HT4005N	 IMP57	 PR400	 TOPVIEW 2007	 TOPVIEW 2006	 CN0050	 SP-0400	 HT52/05	 HT53/05
	•	•	•			•(S)	•		•	•
	•	•	•			•(S)	•		•	•
	•	•	•			•(S)	•		•	•
	•	•	•			•(S)	•		•	•
			•			•(S)	•			
			•			•(S)	•			
	•	•	•	•		•		•	•	•
	•	•	•	•		•		•		
			•	•		•		•		
•(N)	•(N)	•(N)								
•(N)	•(N)	•(N)								
				•		•		•		
•(S)	•(S)	•			•(S)			•		
•(S)	•(S)	•				•(S)		•		
•(A4)	•	•								
•(A4)	•(AB)	•(AB)			•(S)					
•	•	•			•(S)			•		
•	•	•			•(S)			•		
•	•	•			•(S)			•		

CLAMPS AND MULTIMETERS

 TK111	 B80	 SW39	 4413-2	 KIT4000A	 P710EU	 P711EU
	•(S)			•(S)		
•	•(S)			•(S)		
	•(S)		•(S)			
•	•(S)		•(S)			
	•(S)		•(S)			
		•(HT39)	•(S)			
					•(S)	•(S)
	•(S)		•(S)			
			•(S)			
•			•(S)			
			•(S)			
•			•(S)			
			•(S)			

HP30C2 and HP30C3 AC standard clamps
Ranges: 0 ÷ 200A; 0 ÷ 2000A *(HP30C2)*
Range: 0 ÷ 3000A *(HP30C3)*
Basic accuracy: ±0.5%rdg
Output signal: 1V AC
Measurement category: CAT III 600V
Max clamping cable diameter: 70mm
Output connector: Hypertac

HT4003 AC standard clamp
Range: 0 ÷ 400A
Basic accuracy: ±(1.5%rdg+0.5A)
Output signal: 400mV AC
Measurement category: CAT III 600V
Max clamping cable diameter: 30mm
Output connector: safety bananas
(clamp not for power measurement)

HT4004 AC standard clamp
Range: 0.1 ÷ 100A DC
Basic accuracy: ±1%rdg + 0.01A
Output signal: 1V DC
Measurement category:
CAT III 600V
Max clamping cable diameter:
30mm
Output connector: Hypertac

HT4004N DC standard clamp
Ranges: 0 ÷ 10A; 0 ÷ 100A
Basic accuracy:
±(1.0%rdg+3mA) – Range 10A
±(1.0%rdg+30mA) – Range 100A
Output signal: 1V DC
Power supply: 2x1.5V bat. AAALR03
Battery life: 48 hours
Measurement category: CAT III 300V
Max clamping cable diameter: 32mm
Output connector: Hypertac

HT4005N AC standard clamp
Ranges: 0 ÷ 5A, 0 ÷ 100A
Basic accuracy: ±1.0%rdg
Output signal: 1V AC
Measurement category:
CAT III 600V, CAT IV 300V
Max clamping cable diameter: 20mm
Output connector: Hypertac

HT4005K AC standard clamp
Ranges: 0 ÷ 200A
Basic accuracy: ±(0.5%rdg+20mA) – [45 ÷ 65Hz]
Frequency range: 40Hz ÷ 3kHz
Output signal: 1V AC
Measurement category: CAT III 600V
Max clamping cable diameter: 40mm
Output connector: Hypertac

HT96U, HT97U standard clamps
Ranges: 0 ÷ 1A; 0 ÷ 100A;
0 ÷ 1000A *(HT96U)*
Ranges: 0 ÷ 10A; 0 ÷ 100A;
0 ÷ 1000A *(HT97U)*
Basic accuracy: ±1.0%rdg
Output signal: 1V AC
Measurement category: CAT III 600V
Max clamping cable diameter: 54mm
Output connector: Hypertac

HT98U DC standard clamp
Range: 0 ÷ 1000A
AC/DC Basic accuracy:
±(1.0%rdg+0.5A)
Output signal: 1V AC
Power supply: 1x9V battery IEC 6F22
Battery life: approx 75 hours
Measurement category: CAT III 600V
Max clamping cable diameter: 52mm
Output connector: Hypertac

HTFLEX3003 flexible clamp set
HTFLEX3003 is a set of 3 flexible clamps for AC current measurement based on Rogowski method with external power supply and integrator
Ranges: 0÷300A; 0÷3000A
Basic accuracy: ±1.0%rdg
Output signal: 1V AC
Power supply: 2x1.5V battery type IEC AA LR06
Length of flexible head: 610mm;
Measurement cat.: CAT III 1000V
Max clamping cable diameter: 174mm

HTFLEX35 flexible clamp
HTFLEX35 is a flexible clamp for AC current measurement based on Rogowski method without external power supply and integrator
Range: depending on the instrument which it is connected to
Output signal: max 85mV AC
Basic accuracy: ±0.5%rdg
Length of flexible head: 900mm
Measurement category: CAT III 1000V
Max clamping cable diameter: 274mm

HTFLEX33D flexible clamp
HTFLEX33D is a flexible clamp for AC current measurement based on Rogowski method without external power supply and integrator
Range: depending on the instrument which it is connected to
Output signal: max 85mV AC
Basic accuracy: ±0.5%rdg
Length of flexible head: 610mm
Measurement category: CAT III 1000V
Max clamping cable diameter: 174mm

HP30D1 DC standard clamp
Ranges: 10 ÷ 1000A
Basic accuracy: ±1.5%÷2mV
Output signal: 1V AC
Measurement category: CAT III 600V
Max clamping cable diameter: 83mm
Output connector: Hypertac

HT4004P DC unbatteried standard clamp
Ranges: 0 ÷ 10A; 0 ÷ 100A
Basic accuracy:
±(1.0%rdg+3mA) – Range 10A
±(1.0%rdg+30mA) – Range 100A
Output signal: 1V DC
Measurement category: CAT III 300V
Max clamping cable diameter: 32mm
Output connector: Hypertac 4 poles

HT903
Case 3x1-5A/1V for connection to external CTs with 1A or 5A secondary outputs

IMP57
Accessory for
Line/Loop P-P, P-N, P-PE
impedance measurement
with high resolution (0.1mΩ)
and test current of 200A

PR400
Switch probe
START/STOP key for start and stop measurements without pressing function key on meter
Performs measures of:
Continuity, Insulation, RCD, Loop, Phase sequence indication

NEW

HT52/05
Air Temperature/Humidity probe
TEMPERATURE
Range: -20 ÷ 60°C; 4 ÷ 140°F
Accuracy: ±0.7°C; ±1.4°F
Sensor type: capacitive
HUMIDITY
Range: 0 ÷ 100%RH
Accuracy: ±3%rdg at 25°C
Sensor type: capacitive
Output connector: Hypertac

HT53/05
Class A luxmeter probe
Sensor type: silicon photodiode
Ranges: 0÷20; 0÷2k; 0÷20k lux
Response time: <100ms
Output signal:
20 lux: 0.01lux → 1mV
2k lux: 1lux → 1mV
20k lux: 10lux → 1mV
Accuracy: ±3%rdg
Output connector: Hypertac

A0050 - A0053
AC/DC network adapter
230VAC/12VDC *(A0050),*

AC/DC network adapter
110VAC/12VDC *(A0053)*

CN0050
Hands-free kit

SP-0400
Hands-free kit

C2006
Optical/USB cable
Compliance with models with optical interface Windows driver included

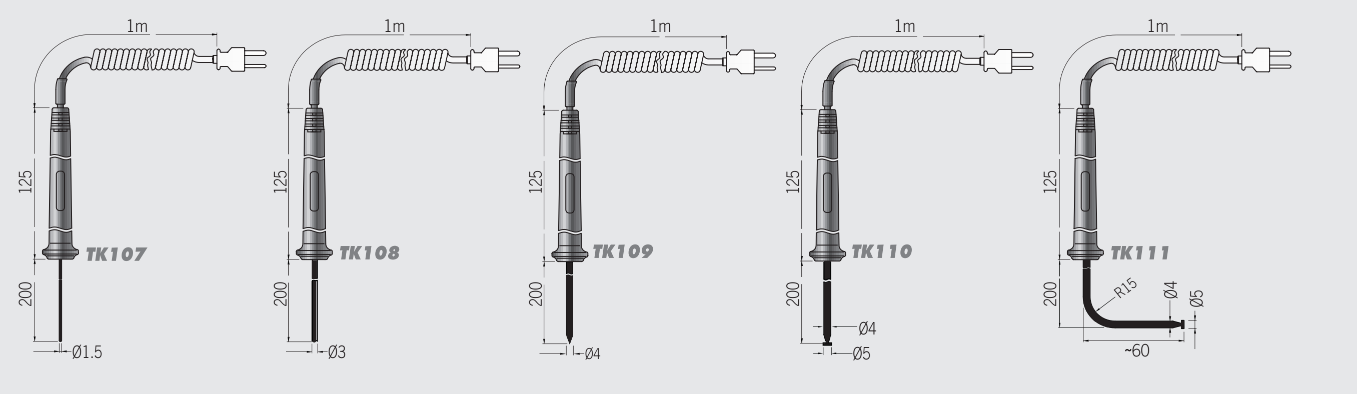
C2009 USB-RS-232 adapter
Compliance with Win2k, XP, Vista, Win7
Platforms: 32 bit and 64 bit
Windows driver included

HT304N reference cell for irradiation measurements
Measurement on Mono/Multi crystalline silicium cells
Range: 50 ÷ 1400W/m2
Protection index: IP65 according to IEC/EN60529
Practical bracket for installation on panel

C2013
Optical/Wi-Fi interface
Wi-Fi connection for MACROTESTG3 instrument
LED indications
Frequency: 2.4GHz (IEEE 802/1 b/g)
Power supply:
2x1.5V batteries type AAA
Auto Power OFF

NEW

OPTIONAL **TEMPERATURE PROBES**



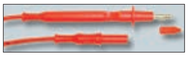
Probe code	**TK107**	**TK108**	**TK109**	**TK110**	**TK111**
Application	***Temperature of air and gas***	***Inner temperature of semisolid substances***	***Inner temperature of liquid substances***	***Temperature of surfaces***	***Temperature of surfaces with 90° tip***
Probe type	Type “K”	Type “K”	Type “K”	Type “K”	Type “K”
Range of temperature	- 40 ÷ 800°C	- 40 ÷ 800°C	- 40 ÷ 800°C	- 40 ÷ 400°C	- 40 ÷ 400°C
Response time	4s	4s	4s	4s	4s
Accuracy (at 100°C)	±2.2 rdg (according to IEC 584)	±2.2 rdg (according to IEC 584)	±2.2 rdg (according to IEC 584)	±2.2 rdg (according to IEC 584)	±2.2 rdg (according to IEC 584)

OPTIONAL GENERIC ACCESSORIES COMPLIANCE WITH **IEC/EN61010-1**

Code 6009-IEC
Safety hard alligator clip (20A) for each
4mm banana test leads

Code 6007-IEC
Safety flexible alligator clip (6A) for
each 4mm banana test leads

Code 4413-2 - Code 4312-2
Couple of test leads red/black CAT III 1000V with
90° connector
Couple of test leads red/black CAT III 1000V



Code 425
Kit of test leads composed by:
2 measurement cables 4mm diameter
2 test leads
2 small clips

Code 404-IEC# (HA40400#)
4mm safety test lead
# = color →N = black, R = red,
B = blue, V = green

Code 402-IEC# (HA40200#)
4mm safety test lead
# = color →N = black, R = red

Code 1066-IEC# (HA10660#)
4mm male + female termination for extension
cables
# = color →N = black, R = red

Code 5004-IEC#
CAT III 1000V safety alligator clip max 20A
# available colours:
N=black, R=red, V=green, B=blue

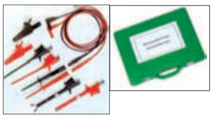
ACONBIN
Binder to Hypertac adapter for connection rigid clamp
to PQA820 instrument

NEW

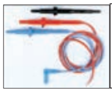
Code 606-IECN
CAT III 1000V safety magnetic adapter (4A) for
connection of test cables to terminal screws

Code 44700
Basic kit for scope meters composed by:
2 cables 4mm diameter
2 clips
2 test leads
2 alligator clips
2 M-F adapters
1 BNC adapter with double banana
2 micro clips
1 probe 150MHz (x1 / x10)

Code 44100
Basic kit for digital multimeters composed by:
2 cables 4mm diameter
2 alligator clips 20A
2 test leads
2 special clips
2 clips



Code 4717-S-IEC-100#
CAT III 1000V safety test leads with
retractable protection #
available colours: N=black, R=red



ABNACON
Adapter Hypertac male – safety banana female
for connection of transducer probes
to power quality analyzers

NOCANBA
Adapter Hypertac female – safety banana male
for connection of transducer probes to multimeters
or data loggers

ACON3F4M
3-pin plug DC clamp adapter to use HP30D1,
HT4004N or HT98U with MPP300

T10
Adapter for connection of type K probes to multimeters

GEF®

PROFESSIONAL TOOLS

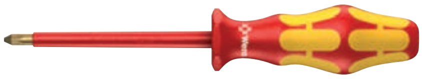
Screwdrivers with **Kraftform**® handle and **Lasertip**® blade

160 i VDE insulated screwdriver for slotted screws Kratform® Plus

Application: for slotted screws
Blade: insulated
Tip: DIN 5264-A, ISO2380, conical blade, Lasertip
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊖		mm		☐	METEL Code
0,6 x 3,5	0,6	3,5	100	81	5	HU000346
0,8 x 4,0 x 100	0,8	4,0	100	98	5	HU000347
1,0 x 5,5 x 125	1,0	5,5	125	98	5	HU000348
1,2 x 6,5 x 150	1,2	6,5	150	105	5	HU000349
1,2 x 8,0 x 175	1,2	8,0	175	112	5	HU000350

162 i PH VDE Phillips insulated screwdriver



Application: for Phillips screws
Blade: insulated
Tip: DIN 5260-PH, ISO8764-PH, Lasertip®
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊕	mm		☐	METEL Code
PH0 x 80	PH0	80	81	5	HU000351
PH1 x 80	PH1	80	98	5	HU000352
PH2 x 100	PH2	100	105	5	HU000353
PH3 x 150	PH3	150	112	5	HU000354
PH4 x 200	PH4	200	112	2	HU000355

165 i PZ VDE Pozidriv insulated screwdriver

Application: for Pozidriv screws
Blade: insulated
Tip: ISO8764-PZ, Lasertip®
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	✳	mm		☐	METEL Code
PZ0 x 80	PZ0	80	81	5	HU000356
PZ1 x 80	PZ1	80	98	5	HU000357
PZ2 x 100	PZ2	100	105	5	HU000358
PZ3 X 150	PZ3	150	112	5	HU000359
PZ4 x 200	PZ4	200	112	2	HU000360

Screwdrivers for magnetothermic switches and RCDs

162 i PH/S VDE insulated screwdriver for PlusMinus screws (Phillips/slotted)

Application: for PlusMinus screws (Phillips /slotted)
Blade: insulated
Tip: PlusMInus (Phillips /slotted)
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	⊕	mm		☐	METEL Code
PH/S1 x 80	#1	80	98	5	HU000361
PH/S2 x 100	#2	100	105	5	HU000362

165 i PZ/S VDE insulated screwdriver for PlusMinus screws (Pozidriv/slotted)

Application: for PlusMinus screws (Pozidriv /slotted)
Blade: insulated
Tip: PlusMInus (Pozidriv /slotted)
Handle: Kraftform® with anti-roll protection, multi-component
Standard: IEC 60900:2004

Model	✳	mm		☐	METEL Code
PZ/S1 x 80	#1	80	98	5	HU000363
PZ/S2 x 100	#2	100	105	5	HU000364

Kit with screwdrivers

Kit of 6 screwdrivers VDE 1000V

Kit composed by:
4 insulated slotted screwdrivers
2 insulated Phillips screwdrivers

Model	Included	❐	METEL Code
K01S	160 i 06 x 3,5 160 i 08 x 4,0 160 i 1,0 x 5,5 160 i 1,2 x 6,5 162 i PH1 x 80 162 i PH2 x 100	5	HU000345

Kit of 4 screwdrivers VDE 1000V

Kit composed by:
4 screwdrivers for switchboards / RCDs

Model	Included	❐	METEL Code
K02S	PH/S1 x 80 PH/S2 x 100 PZ/S1 x 80 PZ/S2 x 100	5	HU000367

Kit of 4 insulated slotted screwdrivers

Kit composed by:
4 insulated slotted screwdrivers

Model	Included	❐	METEL Code
K21	0,6 x 3,5 0,8 x 4,0 x 100 1,0 x 5,5 x 125 1,2 x 6,5 x 150	5	HU000498

Kit of 4 screwdrivers

Kit composed by:
4 insulated slotted screwdrivers
1 insulated Phillips screwdriver
1 insulated Pozidriv screwdriver

Model	Included	❐	METEL Code
K23	0,6 x 3,5 0,8 x 4,0 x 100 PH2 x 100 PZ2 x 100	5	HU000500

Kit of 4 insulated screwdrivers

Kit composed by:
2 insulated Phillips screwdriver
2 insulated Pozidriv screwdriver

Model	Included	❐	METEL Code
K24	PH1 x 80 PH2 x 80 PZ1 x 80 PZ2 x 100	5	HU000501

Kit of 3 screwdrivers

Kit composed by:
2 insulated slotted screwdrivers
1 insulated Philips screwdriver

Model	Included	❐	METEL Code
K3	0,6 x 3,5 0,8 x 0,4 x 100 PH1 x 80	5	HU000394

KIT ALADINO - Case with 12 tools

Kit composed by 12 interchangeable VDE 1000V tools + universal handle + case

1 x 817 VDE handle

1 x 003400 60i 0,4 x 2,5
1 x 003402 60i 0,6 x 3,5
1 x 003403 60i 0,8 x 4,0
1 x 003404 60i 1,0 x 5,5

1 x 003411 62i PH 1 x 154
1 x 003412 62i PH 2 x 154

1 x 003440 62i PH/S # 1 X 154
1 x 003441 62i PH/S # 2 X 154

1 x 003460 96 VK

1 x 003460 97 VK

1 x 003460 98 DK

1 x 003460 99 FL

For voltage up to 1000V AC and 1500V DC
Useful for professional installers

Model	☐	METEL Code
ALADINO	1	HA000060

ALADINO
ONE GENIUS
ALWAYS READY!
1000 V

Kraftform® Kompakt VDE 60i/7 – Pouch

Kraftform Kompakt® VDE 60 i/7

◉
⊖
⊕

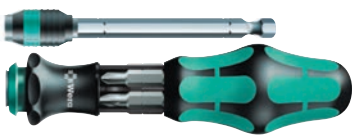
1 Kraftform 817 VDE handle for Wera interchangeable blade
Interchangeable blades (length 154) – Set of 7 pieces

Model	Included	☐	METEL Code
K06S	◉ **817 VDE** 1 x 9x102 ⊖ **KK 60 i** 1 x 0,4x2,5x154 - 1 x 0,6x3,5x154, 1 x 0,8x4,0x154 - 1 x 1,0x5,5x154 ⊕ **KK 62i** 1 x PH1x154 - 1x P2x154	1	HU000366

Holders and adapters

Kraftform Kompakt® 20

◉
○
⊖
⊕
✪



Ideal for power screwdriwers

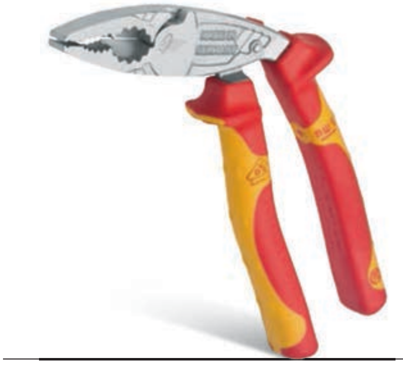
Suitable for 1/4” DIN 3126-C and E 6.3 (ISO 1173) hexagon socket insert bits
Attachment, bayonet Rapidaptor rapid-in, rapid-out, rapid-spin, chuck-all and single hand technology
Kraftform handle with non-roll feature, multi-component, integrated magazine

Model	Included	☐	METEL Code
KK20	◉○ **889/4R** 1 x 1/4”x100 ⊖ **800/1Z** 1 x 1/0x5,5x25 - 1 x 1,2x6,5x25 ⊕ **851/1ZPH** 1 x PH 1x25 - 1 x PH 2x25 ✪ **855/1ZPZ** 1 x PZ 1x25 - 1 x PZ 2x25	1	HU000365

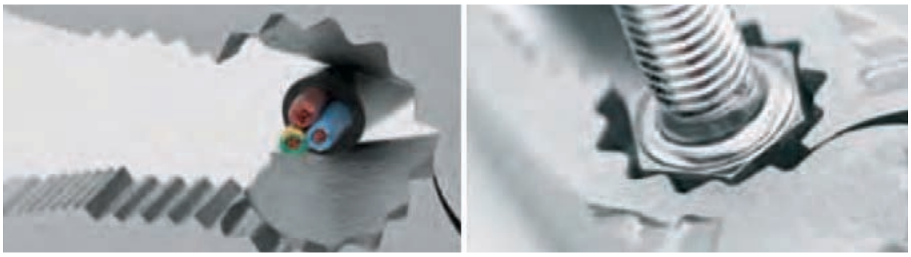
VDE multipurpose pliers

INNOVATIVE
ERGONOMIC
PLIERS!

VDE ergonomical high leverage combination pliers

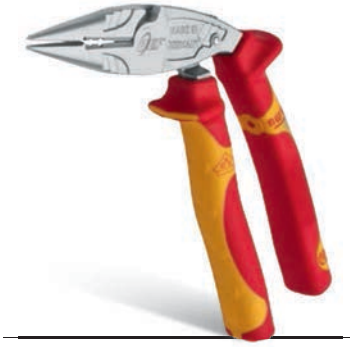


Suitable for application on panel boards and electrical installations
Its special handle grants friendly use and strain free working
VDE insulation according to IEC60900
Double injection handle



Model	mm	g	❐	METEL Code
290/200	200	295	3	HU000720

VDE ergonomical electrician's pliers

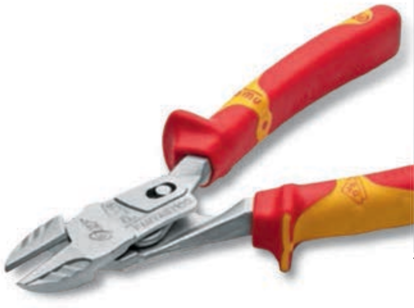


Multipurpose plier suitable for stripping and crimping electrical cables ranging from 1.5 to 2.5 mm^2
Its special handle grants strain free working
VDE insulation according to IEC60900
Double injection handle

Model	mm	g	❐	METEL Code
291/200	200	295	3	HU000721

Heavy Duty Lever Side Cutter

High cutting performances for nails, bolts etc.
Special-tool steel, drop-forged, oil-hardened
Double injection handle



Model	mm	g	❐	METEL Code
292/200	200	340	3	HU000722

VDE multipurpose pliers

VDE multipurpose pliers with cutter DIN ISO5746

Model	mm	⚖ g	❐	METEL Code
265/160	165	200	3	HU000371
265/180	180	260	3	HU000372
265/200	205	285	3	HU000373

VDE chain nose radio pliers DIN ISO5743

Model	mm	⚖ g	❐	METEL Code
235/160	170	165	3	HU000375
235/200	205	215	3	HU000376

VDE chain nose radio pliers angled 40° DIN ISO5745

Model	mm	⚖ g	❐	METEL Code
236/160	170	165	3	HU000716
236/200	205	215	3	HU000377

VDE flat nose pliers DIN ISO5745

Model	mm	⚖ g	❐	METEL Code
215/160	160	145	3	HU000378

VDE heavy duty side cutter pliers DIN ISO5749

Model	mm	⚖ g	❐	METEL Code
240/160	180	280	3	HU000382
240/180	200	305	3	HU000383

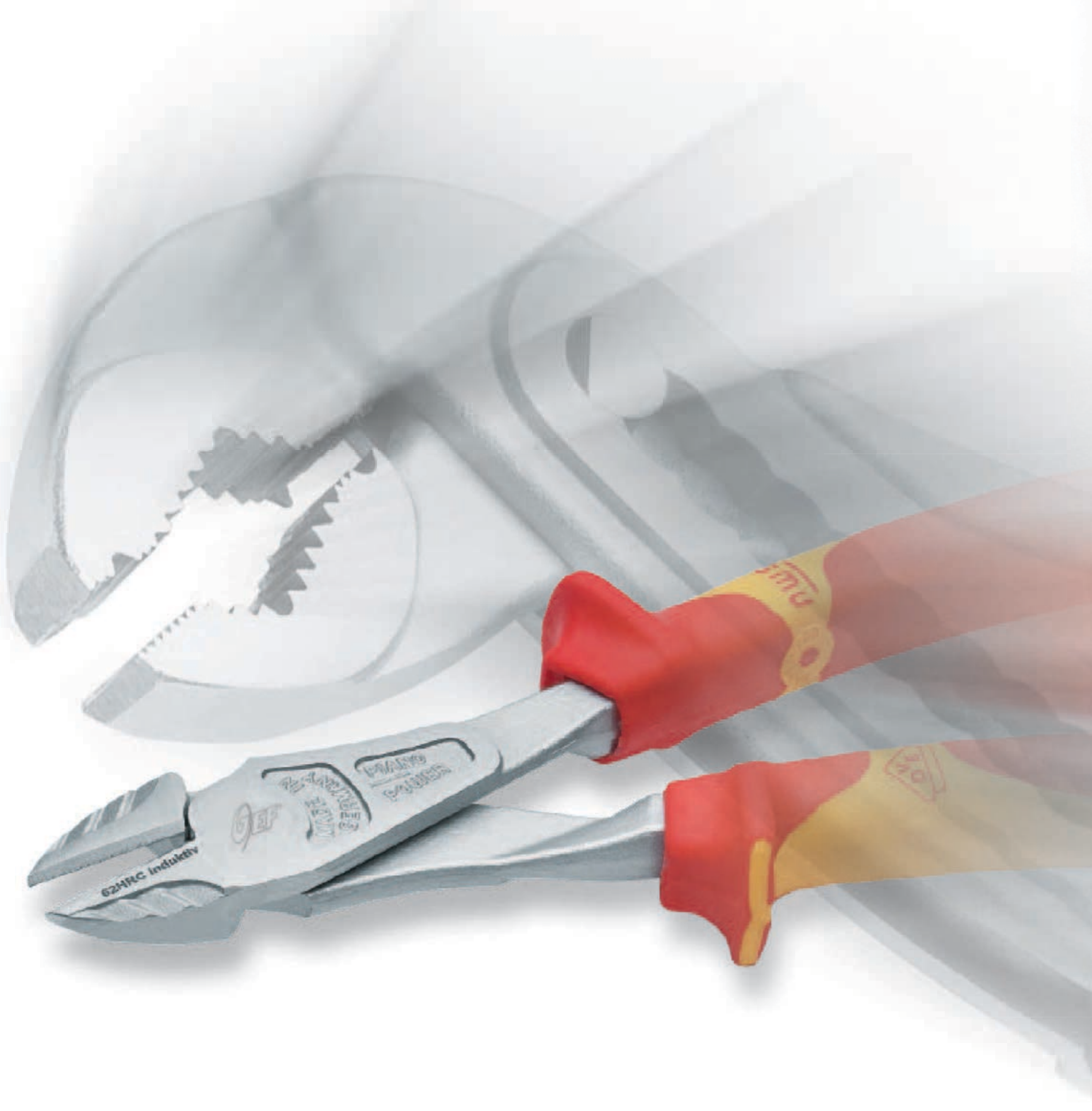
VDE cable cutters

For stripping and cutting copper and aluminum cables.
Shaft profile, lengthening of cutting edges, therefore longer life endurance.
Double injection handle according to EN60900.
Special tool steel, drop forged, oil-hardened

Model	mm	⚖ g	Ø	❐	METEL Code
220/170	160	225	16	3	HU000504
220/210	210	340	25	3	HU000385

VDE waterpump pliers
DIN ISO8976

Model	mm	⚖ g	❐	METEL Code
280/250	250	3505	3	HU000384



Professional scissors with crimping function

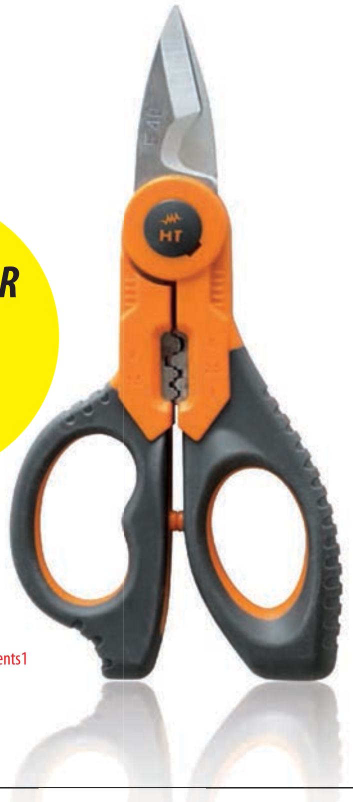
High quality scissors with hard holster

Stainless steel blade
Blade width 19 mm (0.7”)
Blade thickness 3.5 mm (0.1”)
Blade to cut cables up to 70 mm²
Crimping function for terminals from 1 to 6 mm²
Long handle for free strain cutting

Model	mm	g	❐	METEL Code
F40	165	80	1	HU000697

PATENTED

2 FUNCTIONS
CABLE CUTTER 70 mm2 + CRIMPING TOOL

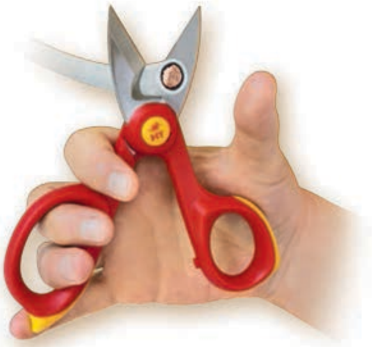


YouTube
www.youtube.com/user/HTinstruments1

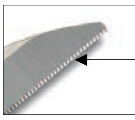
Blade to cut cables up to **70 mm²**

Crimping function for terminals from **1 to 6 mm²**

Scissor and cable cutters



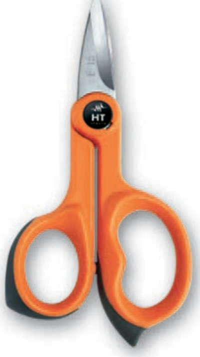
Ergonomic and strong
Stainless steel blade
Very cutting blade
Internal regulation blades removable with screwdriver.



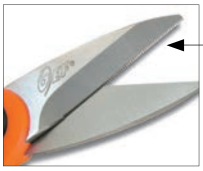
Micro-tooth in one blade to prevent the slipping of the cable on cutting

Model	mm	g	❐	METEL Code
F20	155	90	24	HU000534

Professional scissor for installers



Ergonomic and strong
Stainless steel blade
Very cutting blade



Micro-tooth in one blade to prevent the slipping of the cable on cutting

Model	mm	g	❐	METEL Code
F15	155	70	24	HU000293

Scissors cloth holster

Practical holster for model F15 made of fine colour nylon
provided with belt clip

Model	❐	METEL Code
SP-6238	10	HU000393

Multipurpose cutter

5 cutting interchangeable tempered steel supports safely fixed with screws
Performing plane cuttings, circular cuttings (25mm maximum diameter), 90° cutting and oblique with adjustable orientation
Ideal solution for perfect cutting on plastic surface (hard PVC pipes) rubber surface (resin pipes, cables, etc..) and various (plexiglass, nylon, etc…)

Model	mm	g	❐	METEL Code
F04	220	316	1	HU000292

Multipurpose scissors

With stainless steel blade
With adjustable screw tightening
With safety lock

Model	mm	g	❐	METEL Code
F02	180	110	1	HU000052

Cable cutter scissors

With stainless steel blade
With adjustable screw tightening
With safety lock
With cable cutter blade

Model	mm	g	❐	METEL Code
F03	160	110	1	HU000053

VDE 1000V cable cutters

Suitable for cutting copper and aluminium cables
With ratchet device
High cutting capacity

Model	mm	g	Ø	❐	METEL Code
SH320-1000V	260	600	32	1	HU000060
SH500-1000V	285	800	52	1	HU000040

Cable strippers

Self-adjusting cut and strip tool

Insulated PVC cables 0.02-10 mm^2 / 34-8 AWG
For flexible cables 10 mm^2 / 8 AWG
For rigid cables 1.5 mm^2 / 16 AWG

Model	Ø mm	❐	METEL Code
SF04	0,02 - 10 mm^2	1	HU000387
L04 Interchangeable blades		1	HU000391

Cable stripper

This is a simple and reliable tool capable of stripping insulated PVC wires ranging from 0.03 to 6 mm^2 / AEG 30-10a. Adjustable length from 3 up to 16 mm. It can cut multiple wires, 4-6-8 pole telephone and transmission cables. Light, easy to use and strain free thanks to its ergonomic design. Provided with adjusting device to change thickness of wire insulation. No risk of damaging the conductor. Made of polyamide strengthened by fibreglass.

Model	Ø mm	❐	METEL Code
SF03	0,2 - 6 mm^2	3	HU000087

Cutter and stripper

Pressure regulation of blades
For both soft and rigid wires
Hardened steel knives
Self-adjusting wire length

Model	Ø mm	❐	METEL Code
SF01	0,5 - 6 mm^2	6	HU000039

0.02-10mm²
GEF SF04
METEL: HU000387

Self-adjusting cable stripper

Self-adjusting and self-turning stripper suitable to all insulated cables, capable of helical, circular and longitudinal cuts as well as inner stripping. For cables up to 25 mm^2

Model	Ø mm^2	❐	METEL Code
PC03	4,5 - 25	1	HU000065
L03 Spare blade		1	HU000078

Multistripper

Newly developed tool for cable and wire stripping for all common round cables of 8 – 13 mm^2
It allows circular and longitudinal stripping as well as flush- stripping in hard-to-reach areas e.g. ceilings and walls, junction and distribution boxes, switch cabinets etc.
Suitable to all common standard conductors of 0.5 mm^2, 0.75 mm^2, 2.5 mm^2, 4.0 mm^2 and 6.0 mm^2 (24-10AWG). Easily accessible built-in side cutter for flexible conductors of max. 6.0 mm^2. Solid conductors of max. 4.0 mm^2 (12AWG).

Model	Ø mm^2	❐	METEL Code
S400	0,6 - 6	1	HU0000096

Cable stripper

Accurate, fast and safe stripping of circular cables with diameter 4-28 mm^2.
Provided with removable heavy duty plastics adapter.
No damage of the inner conductors due to infinitely variable adjusting of the cutting depth.

Model	Ø mm^2	❐	METEL Code
S28	4 - 28	1	HU000097
L28 Spare blade		1	HU000098

Modular crimping tool

Burnished steel. For cutting, stripping and tighten RJ11, RJ12, RJ45 connectors.

Model	↔ mm	⚖ g	Ø mm^2	❐	METEL Code
CM01	205	520	0.08 -10	1	HU000286

Crimping technique

Recently crimping technique on connectors has replaced soldering in many applications.

Crimping offers mechanical stability and resistance to corrosion. Consistency in crimping grants long lasting electrical connections.

In order to carry out correct crimping, however, conductor, connector and crimping tool shall match to each other.

Crimping quality on connectors can be defined according to standards DIN EN 6035-2 IEC 512 and DIN EN 60999-1.

Moreover manufacturers often define some additional standards due to the multitude of connectors and cables available on the market.

Our crimping tools keep to those features offering high technology instruments:
-integrated blocking device grants complete crimping
-ergonomically designed handles
-adjustable pressing and dies for each connector
-pressing adjusted by manufacturer

Adequate preparation of connectors for stripping purposes is as important as their correct positioning inside the tool in order to get precise crimping.
Innovative and high tech tools grant high accuracy on your connections.

Photovoltaic and connectors

Recently solar energy employment to generate electricity has been growing fast.

Development of solar panels with increasing efficiency is considerably contributing to growth of renewable energy in the world.
This helps to reduce the use of fossil fuels to generate energy and also to provide electricity to remote locations.

The installation of a photovoltaic plant is an investment for several decades whose income depends on the quality of the installation.
Long-term resistance to atmospheric agents and long life of cables and connectors are essential for a good installation performance.
Each panel shall be properly connected that is to say that cable length shall be as short as possible in order to avoid leaks through conductors.

Crimping through our tools grants very good resistance to corrosion and infiltrations reducing energy losses even after several years.
Connectors for photovoltaic installations are evolving and professional installers shall be ready to service them accordingly.

To this purpose we offer a wide range of tools for crimping solar cables and connectors as well as different kinds of dies enabling you to work safely and professionally.

GEF tools will enable you to realise and service installations today and tomorrow.

Q1 universal crimp tool

Special tool for cabling photovoltaic systems. It has the following characteristics:
- in hardened and tempered chrome-vanadium steel
- handles in non-slip material, two components
- interchangeable dies and locators allow working with different types of connectors with a single tool.

The high-precision crimp tool Q1 has been designed to guarantee professional connections with a single manual tool. The tightening force is multiplied thanks to an internal system of levers which allows a 30% reduction of the force normally necessary. Q1 is provided with a practical case in anti-shock resin without dies and without locators, with:
- crimp tool Q1
- L wrench for die assembly
- adjustable wrench

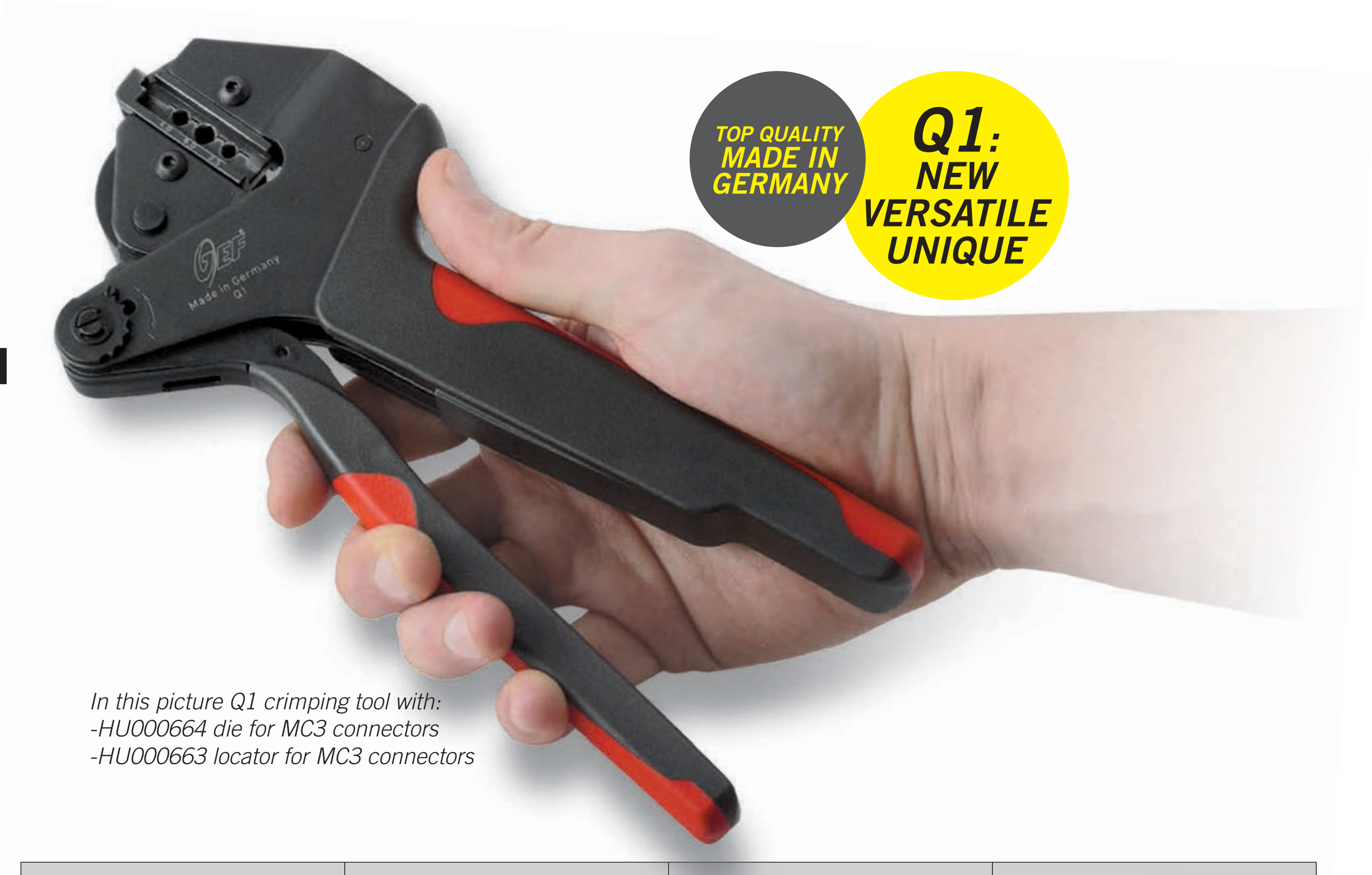
Customization according to requirements with the available dies and locators (special dies available on demand).

Model	❒	METEL Code
Q1	1	HU000676

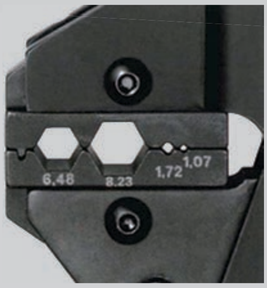
Q1 STANDARD PACKAGE

Practical shockproof case
Including:
-crimping tool Q1
-L-wrench for die assembly
-adjustable wrench

Possibility of interfacing according to your requirements.



In this picture Q1 crimping tool with:
-HU000664 die for MC3 connectors
-HU000663 locator for MC3 connectors



INTERCHANGEABLE DIES

You can use the same tool for different connectors just changing die sets to be selected within the wide range available so working on all the nowadays' connectors with utmost accuracy.

TIGHTENING FORCE

Tightening strength can be adjusted by means of a knob to meet the crimping specifications declared by manufacturers.

LOCATOR

Thanks to locators you can place connectors properly inside the tool granting more accurate and homogeneous connections.

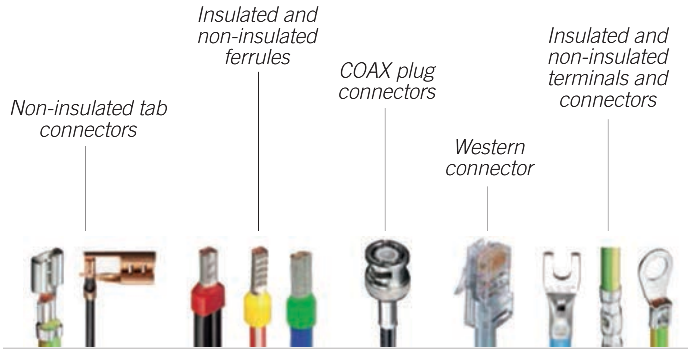
EMERGENCY UNLOCKING

In order to fix an erroneous insertion of the connectors it is possible to unlock the tool during crimping. by a screwdriver.

Dies and locators for Q1

METEL Code		Connector type	Die	
HU000662		MC4		Die for 2.5 - 4.0 - 6.0 mm^2 MC4 connectors
HU000661		MC4		Locator for 2.5 - 4.0 - 6.0 mm^2 MC4 connectors
HU000660		Tyco		Die for 1.5 - 2.5 - 4.0 - 6.0 mm^2 Tyco connectors
HU000559		Tyco		Locator for 1.5 - 2.5 - 4.0 - 6.0 mm^2 Tyco connectors
HU000690		Wieland		Die for 0.14 - 1.0 - 1.5 - 2.5 - 4 mm^2 Wieland terminals
HU0000691		Wieland		Die for 4.0 - 6.0 - 10 mm^2 Wieland connectors
HU000692		Huber & Suhner		Die for 2.5 - 4 mm^2 Huber & Suhner terminals
HU000671		Huber & Suhner		Die for 4.0 - 6.0 mm^2 Huber & Suhner connectors
HU000664		MC3		Die for 2.5 - 4.0 - 6.0 mm^2 MC3 connectors
HU000663		MC3		Locator for 2.5 - 4.0 - 6.0 mm^2 MC3 connectors

METEL Code	Connector type	Capacity mm^2	Die
HU000683	Insulated terminals and plug connectors	0.5 -1.0 1.5-2.5 4.0-6.0	
HU000715	Heat shrinkable sleeve connectors	0.5 -1.0 1.5-2.5 4.0-6.0	
HU000677	Non-insulated terminals & plug connectors	4 6 10	
HU000678	Non-insulated terminals & plug connectors	0.5 -1.0 1.5-2.5 4.0-6.0 10	
HU000680	Non-insulated open connectors	0.1- 0.25 0.5-1.0 0.5-1.0 1.5-2.5	
HU000682	Non-insulated open connectors	0.5 -1.0 1.5-2.5 4.0 - 6.0	
HU000688	Lug/ flag connectors	0.5 -1.0 0.5 -1.0 1.25-2.5	
HU000689	Lug/ flag connectors	1.25 -2.5 3 -4 4-6	
HU000685	End sleeve (ferrules)	0.25 -0.75 1.0-1.5 2.5 - 4 - 6	
HU000686	End sleeve (ferrules)	10 16 25	
HU000684	Western plug (4 poles)	4-6-8 pin	


Non-insulated tab connectors
Insulated and non-insulated ferrules
COAX plug connectors
Western connector
Insulated and non-insulated terminals and connectors

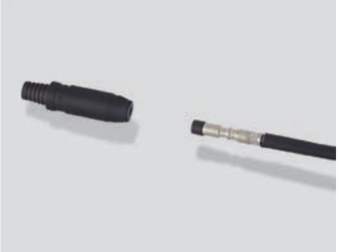
Q2 Special tool for MC3 assembly
(to insert the rubber connector onto the crimped cable)

Q2 is a practical clamp for mounting connector MC3 once the terminal has been crimped to the cable. The 3 thimbles provided allow assembly on cables with different diameters (from 2.5 to 10 mm²).

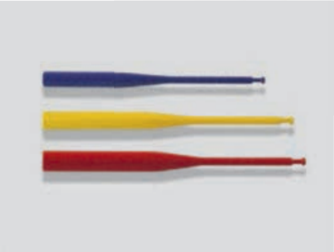
Thanks to its small size (325 mm) and its weight (460 g), this tool can be used directly on site and even on a roof. Lightweight and portable, it is made of anti-shock plastic.

Model	❐	METEL Code
Q2	1	HU000675

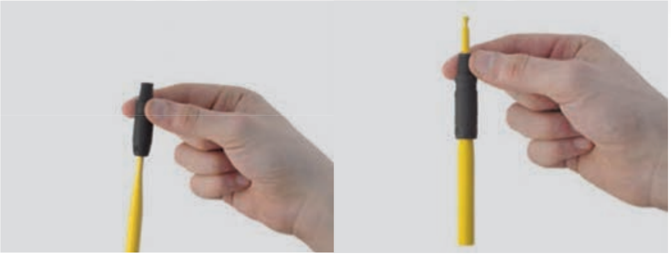
Mounting examples of MC3 with Q2



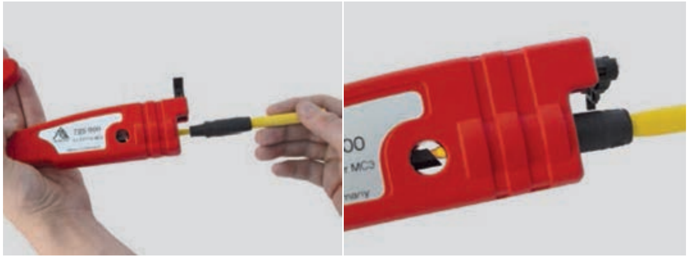
Prepare crimped connector MC3 and the insulating connector (male or female)



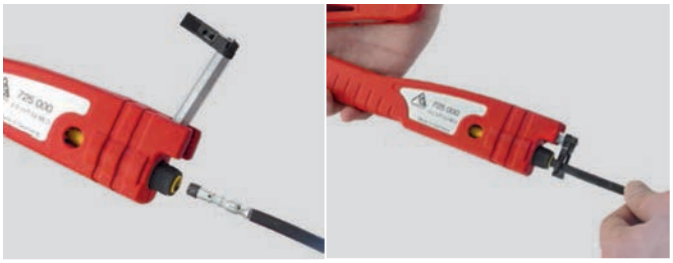
Choose the thimble according to cable diameter



With the right hand, completely insert the MC3 connector into the thimble



Insert the thimble with the connector into the appropriate housing for the cable

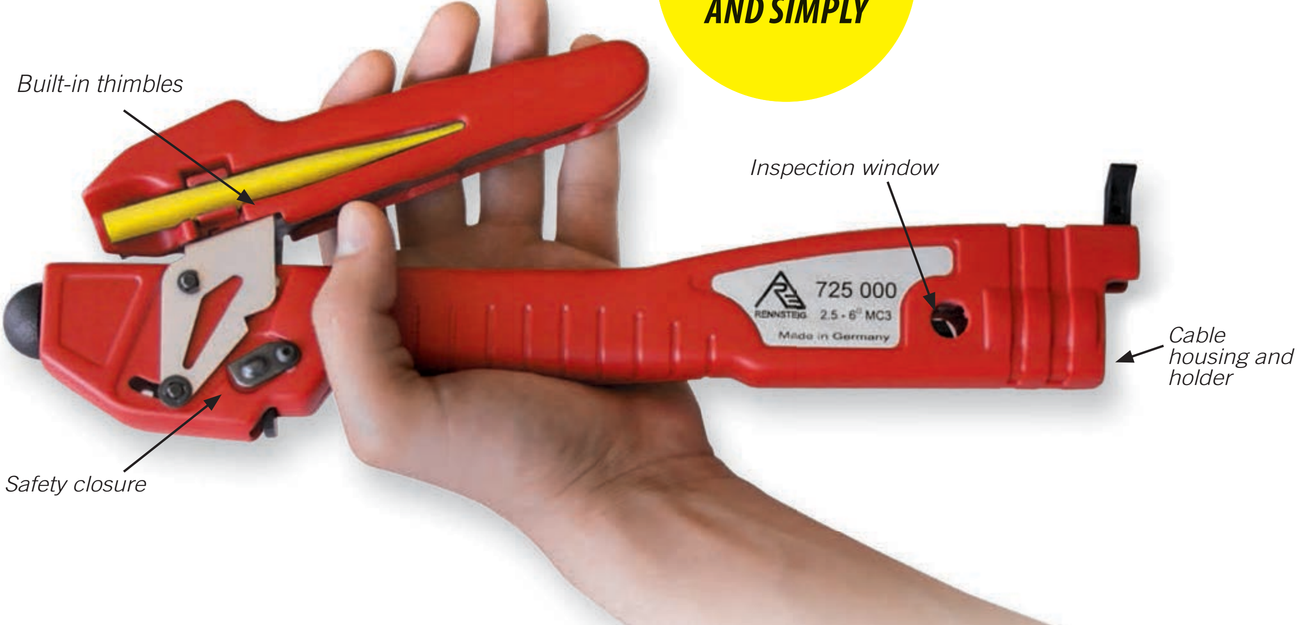


Press the clamp until the thimble is completely inserted in the connector and insert the crimped cable, and fasten it with the relevant cable holder.

Continue pressing the tool until no resistance is felt. Then remove the cable by extracting the relevant cable holder.
By using this innovative tool, it is possible to cable systems directly on site, thus saving installation times and costs.

MOUNTING OF MC3
INNOVATIVE
AND SIMPLY

TOP QUALITY
MADE IN
GERMANY



Q3 Insulation stripper for special applications

Special hand tool with length stop for high-quality stripping and dismantling of single and multi-wire cables ranging from 0.03 to 16 mm².

Applicable for a great variety of insulations of differing hardness.

No pinching or deforming of cable ends, thanks to a special cutting mode.

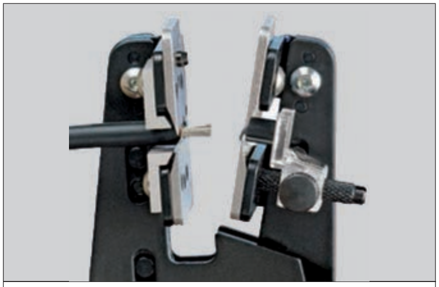
Interchangeable blades for different conductor ranges provided as optional accessories

Automatic release after operation.

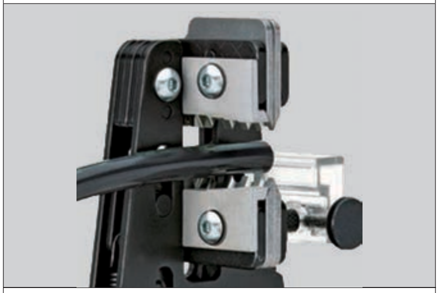
Model	❒	METEL Code
Q3	1	HU000712

TOP QUALITY
MADE IN GERMANY
SPECIAL TOOL
Made in Germany

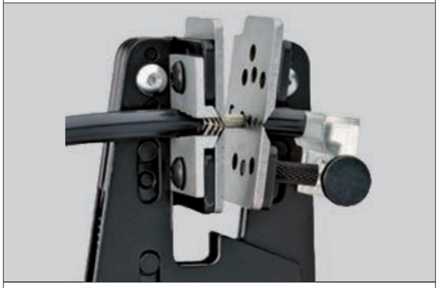
In this picture Q3 insulator stripper with:
70821830 tool for ASI-bus cable outer sheath



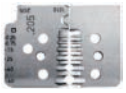
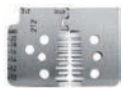
Position cable at length stop
Thanks to the adjustable length stop you can decide how much insulation to remove with pinpoint accuracy.



Stripping with profile blades
The wide range of interchangeable blades allows precise stripping of various types of cable without damaging conductors.



Automatic removal of insulation
The insulating part is removed automatically at the end of operation allowing compliance with the connector specifications of the connector before crimping.

Item code	Range of application	Capacity mm^2	Strip size - Ø	Stripper plate pairs
708 203 3 0	Tool for Teflon® insulated cables	2.5 - 10	4.45 3.50 2.70 2.30	
708 201 3 0	Tool for Teflon® insulated cables with cable guide	0.03 - 2.08	0.35 / 0.55 0.80 / 1.05 1.35 / 1.60 1.75	
708 205 3 0	Tool for DIN-standard multi-wire cables	0.14 - 6	0.70 / 1.35 1.70 / 2.30 2.70 / 3.50	
708 206 3 0	Tool for 1, 2 and 4-core POF-cables	1 cable 6.7 2 cables 6.2 4 cables 5.5	5.80 4.80 2.50 1.50	
708 209 3 0	Tool for solar cable “RADOX® 125”	2.5 / 4.0 / 6	3.90 3.00 2.40	
708 212 3 0	Tool for special cable with Teflon®, glass fibre braid and Kapton® film insulation	AWG 20 - 10	1.00 / 1.20 1.40 / 1.80 2.40 / 2.80	
708 218 3 0	Tool for ASI-bus cable outer sheath	2 x 1.5 10.2 x 4	oval-shaped 2 x R1.30 2 x 1.70	
708 226 3 0	Tool for solar cables	1.5 - 6.0	3.90 3.00 2.40 1.90	
708 223 3 0	Tool for oval PVC and silicone compensating wire	6 10 16	5.70 4.45 3.50	
708 269 3 0	Tool for solar cables	4 6 10	3.0 3.9 5.0	

Universal aluminum frame mini-hacksaw

Universal aluminium mini hacksaw with possibility to put the blade into 6 different cut positions. Extremely small and lightweight it is provided with high resistance PUK blade.

Model	↔ mm	⚖ g	❐	METEL Code
SH4010	260X100	130	3	HU000084
LH4000 PUK blade with highly resistant hardened teeth	147		12	HU000086

Sledge hammer

Patented hammer German type. Made of electro-inductive hardened steel C45, sideways smoothed, laquered, polished striking faces and blunted edges. Ash handle double curved, 1/2 red laquered, head fixed with round wedge and red epoxy resin.

Model	↕ mm	↔ mm	⚖ g	❐	METEL Code
MT GR 300	22,5	300	300	3	HU000071

Sledge hammer

Electrician’s hammer. Made of electro-inductive hardened steel C45, sideways smoothed, laquered, polished striking faces and blunted edges. Patented three-component aluminium alloy handle with antislip rubber grip. Head fixed with round wedge and red epoxy resin.

Model	↕ mm	↔ mm	⚖ g	❐	METEL Code
MTS GR 300	22,5	300	300	3	HU000073

Chisels

Model	↔ mm	❐	METEL Code
3612531	250	3	HU000425
3613031	300	10	HU000411

Aluminum bubble level

Model	↔ mm	❐	METEL Code
92020	21	3	HU000417

Measuring tape

ABS & TPR case with clip, lock and strap nylon blade. Tape can be locked at any point and be rewound pressing the appropriate key.

Model	↔ mm	❐	METEL Code
M5	5 m	3	HU000069
M8	8 m	3	HU000077

Universal key

Made of zinc with adapter for ¼” bits and 2-way screwdriver. Weight g. 70

Model	✚ mm	■ mm	□ mm	▫ mm	▲ mm	⚲ mm	❐	METEL Code
400172	70 x 70	7-8	6	5	7-8	3-5	10	HU000038

Set of 9 L-keys for hexagon socket screws

Set of 9 L-keys for hexagon socket screws

Model	❐	METEL Code
950PKS/9SMN	3	HU00386

Professional cutter

With interchangeable and adjustable sliding blade. Lightweight handle with antislip rubber grip.

Model	↔ mm	⚖ g	❐	METEL Code
ZN02	180	150	5	HU000081
LZ2 Set of 10 spare blades			1	HU000080

Ratchet wrench

With interchangeable and adjustable sliding blade.
Lightweight handle with antislip rubber grip.

Model	↔ mm	⚖ g	❐	METEL Code
SAW-8D	250		1	HU000426

SAW-8D
250 mm (1")
GEF

Cordless drill

SPARKY
SPARKY

Technical specifications

- Voltage 18V
- Battery capacity NiCd: 2 Ah
- Charging time: 1 h
- Torque settings: 20 + 1 pos.
- Keyless chuck: 1.5 ÷ 13mm
- Drilling capacity in steel/wood/concrete: 13/28/13 mm
- Weight (including battery): 2,3 Kg.

Features

- Synchronized two-speed gearbox with metal planetary gears Keyless single sleeve chuck
- Modern ergonomic design for comfort and balance
- Magnesium alloy gearbox
- Variable speed and reverse
- Electric motor brake
- Ergonomic soft grip handle
- LED working light
- LED battery indicator
- Integrated bit holder
- Comes complete with carrying case, auxiliary handle, 2 batteries, fast charger, 2 bits, strap

Model	Including	❐	METEL Code
BUR2 18E	carrying case, auxiliary handle, 2 batteries, fast charger, 2 bits, strap	1	HU000405

Kit including 6 bi-metal hole saws

Complete with PVC case, size 300x180x65 mm

Model	Including	❐	METEL Code
KW04-9100	Bi-metal hole saws with diameter 16-20-25-32-40-50 Accessory KW04-9001 6.35 mm Accessory KW04-9002 11 mm Adapter KW04-9080 Ballpoint hex key	1	HU000285

Step drill

Made of HHS steel
Suitable for portable drills
To drill and enlarge holes on metal sheet
Holes with diameter 5-8-10-13-19-21-23-26-29-31-33-35
Step no. 13, stalk diameter 13 mm

Model	❐	METEL Code
KW31-0318	1	HU000284

160 i VDE insulated screwdriver for slotted screws Kratform® Plus

Model		❐	METEL Code
Super installers		1	HU000492
Code	*Description of internal parts*		
265/180	VDE1000V multipurpose plier	1	
240/160	VDE1000V diagonal cutter plier	1	
F15	Scissor for electricians	1	
235/200	VDE1000V halfround jaws plier	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
1,0x5,5X125	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V Phillips screwdriver	1	
PH2x100	VDE1000V Phillips screwdriver	1	
PZ2x100	VDE1000V Pozidriv screwdriver	1	
CF19	Phase detector	1	
SP-4246 Empty box		1	HU000270

PROF K4S Small box with 4 tools

Model		❐	METEL Code
PROF K4S		1	HU000398
Code	*Description of internal parts*		
F15	Scissor for electricians	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V Phillips screwdriver	1	
SP-3216 Empty small box		1	HU000322

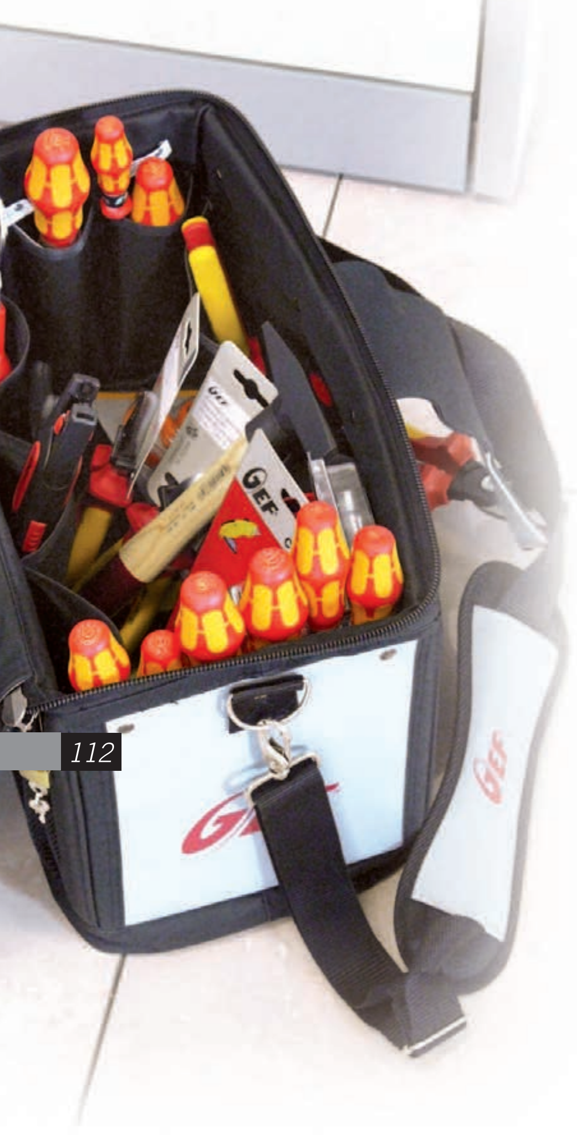
INSTALLERS Medium box with 5 tools

Model		❐	METEL Code
INSTALLERS		1	HU000397
Code	*Description of internal parts*		
F15	Scissor for electricians		
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
265x180	VDE1000V multipurpose plier	1	
PH1x80	VDE1000V Phillips screwdrive	1	
SP-3215 Empty medium box		1	HU000041

MAX INSTALLERS Big box with 8 tools

Model		❐	METEL Code
MAX INSTALLERS		1	HU000399
Code	*Description of internal parts*		
F15	Scissor for electricians	1	
0,6x3,5	VDE1000V screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V screwdriver for slotted screws	1	
PH1x80	VDE1000V Phillips screwdriver	1	
PZ1x80	VDE1000V Pozidriv screwdriver	1	
265/180	VDE1000V multipurpose plier	1	
240/160	VDE1000V diagonal cutter plier	1	
CF19	Phase detector	1	
SP-3214 Empty big box		1	HU000045

Hard carrying bag with tool holders, attaché pocket, tool pocket, with zipper and key lock, ergonomic strap



Bag with 20 tools

Model	Dimensions (mm)	❐	METE Code
61/19S	440 x 340 x 190	1	HU000419
Code	*Description of internal parts*		
SP-5404	Tool bag	1	
0,6x3,5	VDE1000V insulated screwdriver for slotted screws	1	
0,8x0,4x100	VDE1000V insulated screwdriver for slotted screws	1	
1,0x5,5x125	VDE1000V insulated screwdriver for slotted screws	1	
1,2x6,5x150	VDE1000V insulated screwdriver for slotted screws	1	
PH1x80	VDE1000V Philips insulated screwdriver	1	
PH2x100	VDE1000V Philips insulated screwdriver	1	
PZ/S1x80	VDE1000V Pozidriv insulated screwdriver for RCDs	1	
PZ/S2x100	VDE1000V Pozidriv insulated screwdriver for RCDs	1	
265/180	VDE multipurpose cutter pliers	1	
240/160	VDE HD diagonal cutter pliers	1	
PC03	Cable stripper 4.5 – 25 mm	1	
SF03	Cable stripper & cutter 0.2 - 6 mm	1	
F15	Electrician's scissors	1	
ZN02	Professional cutter	1	
CF19	Multi tester with voltage test function	1	
MT GR 300	Hammer with wooden handle 300 g	1	
M5	Nylon measuring tape	1	
400172	Universal key	1	
F03	Cable cutter scissors	1	

Bag with 24 tools

Model	Dimensions (mm)	❐	METE Code
61/23S		1	HU000401
Code	*Description of internal parts*		
SP-5404	Tool bag	1	
0,6x3,5	VDE1000V insulated screwdriver for slotted screws	1	
0,8x0,4x100	VDE1000V insulated screwdriver for slotted screws	1	
1,0x5,5x125	VDE1000V insulated screwdriver for slotted screws	1	
1,2x6,5x150	VDE1000V insulated screwdriver for slotted screws	1	
PH1x80	VDE1000V Philips insulated screwdriver	1	
PH2x100	VDE1000V Philips insulated screwdriver	1	
PH3x150	VDE1000V Philips insulated screwdriver	1	
PZ1x80	VDE1000V Pozidriv insulated screwdriver	1	
PZ/S1x80	VDE1000V Pozidriv insulated screwdriver for RCDs	1	
PZ/S2x100	VDE1000V Pozidriv insulated screwdriver for RCDs	1	
235/200	VDE radio/telephone (chain nose) pliers	1	
240/160	VDE HD diagonal cutter pliers	1	
265/180	VDE multipurpose cutter pliers	1	
280/250	VDE waterpump pliers	1	
F03	Cable cutter scissors	1	
SF03	Cable stripper & cutter 0.2 - 6 mm	1	
F15	Electrician's scissors	1	
ZN02	Professional cutter	1	
400172	Universal key	1	
950PKS/9SMN	Set of 9 ballpoint hex keys	1	
CF19	Multi tester with voltage test function	1	
MT GR 300	Hammer with wooden handle 300 g	1	
M5	Nylon measuring tape	1	

Empty hard carrying bag

Empty hard carrying bag

Model		❐	METEL Code
SP-5404		1	HU000321

Jacket for installers

Jacket for professional installers

Model	❒	METEL Code
SP-3225	1	HU000042

Hard carrying cases

Hard case with 11 tools

Model	Dimensions (mm)	❒	METEL Code
BO12	475 x 380 x 170 mm	1	HU000708
Code	*Description of internal parts*		
VN06	Empty suitcase	1	
0,6x3,5	VDE1000V insulated screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V insulated screwdriver for slotted screws	1	
PH0x80	VDE1000V Philips insulated screwdriver	1	
PH1x80	VDE1000V Philips insulated screwdriver	1	
265/160	VDE multipurpose cutter pliers	1	
F20	Electrician's scissors	1	
SH4010	Mini hacksaw with 6 different cut settings	1	
MT GR 300	Hammer with wooden handle 300 g	1	
CF19	Multi tester with voltage test function	1	
M5	Nylon measuring tape 5 m	1	

Hard case with 13 tools

Model	Dimensions (mm)	❒	METEL Code
BO13	475 x 380 x 170 mm	1	HU000709
Code	*Description of internal parts*		
VN06	Empty suitcase	1	
0,6x3,5	VDE1000V insulated screwdriver for slotted screws	1	
0,8x4,0x100	VDE1000V insulated screwdriver for slotted screws	1	
PH0x80	VDE1000V Philips insulated screwdriver	1	
PH1x80	VDE1000V Philips insulated screwdriver	1	
265/160	VDE multipurpose cutter pliers	1	
F20	Electrician's scissors	1	
SH4010	Mini hacksaw with 6 different cut settings	1	
MT GR 300	Hammer with wooden handle 300 g	1	
235/160	VDE radio/telephone (chain nose) pliers	1	
M5	Nylon measuring tape 5 m	1	
PC03	Adjustable cable stripper	1	
PH2x100	VDE1000V Philips insulated screwdriver	1	

CF19 - Multi tester with voltage test function

Screwdriver multi tester with continuity test, transparent handle with led

Model	❐	METEL Code
CF19	12	HU000054

G13 – AC 400A clamp meter

400A~
200A~
20A~
2A~
Ω
V⎓
V~
OFF
HOLD
AUTO
HOLD
AC
212
MODE
RANGE
MAX
AC CLAMP METER
GEF G13
COM
VΩ
CAT III 600V

G13 clamp meter carries out measurements of AC current, AC/DC voltage, resistance, continuity test and diode test.
Thanks to its compact shape and wide display is friendly use and ideal for any electrical installer.
It complies with IEC/EN61010-1 CATIII 600V.

Functions
AC/DC voltage up to 600V
AC voltage basic accuracy ± (1.5% reading+ 2 digits)
DC voltage basic accuracy ± (0.5% reading + 1 digit)
AC current up to 400A
AC current basic accuracy ± (2.5% reading + 4 digits)
AC current resolution 1mA
Resistance up to 60 Ω
Resistance basic accuracy ± (3.0% reading + 5 digits)
Continuity test for R< 50 Ω
Diode test
Data Hold, MAX, manual ranging
LCD, 3-1/2 digits, 2000 counts with backlight
Auto power off
Conversion type, average value
Power supply 1x9V battery type IEC 6F22
Dimensions (LxWxH) 197x70x40 mm
Weight (including battery) approx.. 183 g.
Safety: IEC/EN61010-1, CATIII 600V

Accessories
- Pair of test leads
- Carrying case
- Battery
- User manual

Model	❐	METEL Code
G13	8	HR000G13

THE INTERNATIONAL CERTIFICATION NETWORK

CERTIFICATE

IQNet and its partner
CISQ/IMQ-CSQ
hereby certify that the organization

HT ITALIA SRL
VIA DELLA BOARIA 40 - 48018 FAENZA (RA)

for the following field of activities

Design, marketing and servicing related to instruments for measurement of electrical quantities and testing of electrical installations

has implemented and maintains a
Quality Management System
which fulfills the requirements of the following standard

ISO 9001:2008

Issued on: 2012 - 05 - 29 Expiry date: 2015 - 06 - 30

Registration Number: IT - 1261

Michael Drechsel
President of IQNET

Gianrenzo Prati
President of CISQ

CERTIFICATO N.
CERTIFICATE N. 9105.HTIT

HT ITALIA SRL

ISO 9001:2008

2012-05-29

2015-06-30

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